

March 1952

RAILWAY

TRACK *and* STRUCTURES

A Simmons-Boardman TIME-SAVER Publication

EQUIPMENT
ECONOMIES
NUMBER

This issue:

new equipment
bought today

USA programs;
USA exhibition

long rails
fold on SP

turning plant
bridge ties

rail gang with
e-gang output

patents—
page 5



STOP



When a policeman says, "Stop," it means it. The results are the same with the Improved Pole Anchor . . . as it positively stops rail creepage and prevents the many destructive forces which interfere with high track standards.

THE P. & M. CO.

Division of Pease and Company

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NOW... SIDE TAMPING with the Kershaw **SUPER** Jack-All!

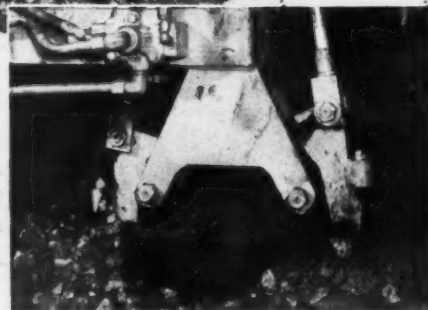
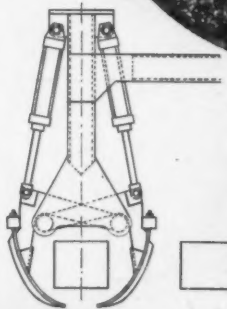
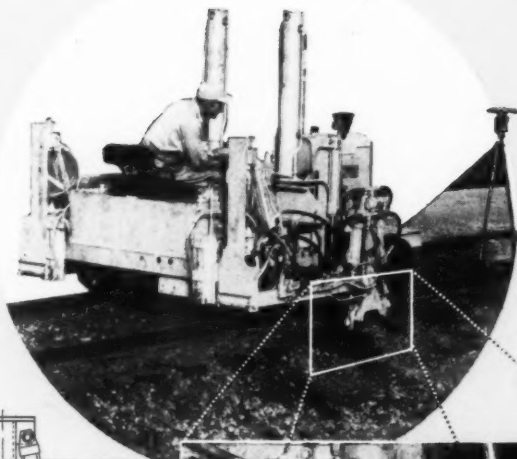
Now . . . Kershaw, originators of the tamping power jack in 1954, offers side tamping by the new Kershaw Super Jack-All.

The Super Jack-All tamps on the side of ties with both vibration and compaction. It also is equipped with an automatic tie finder which spots the tamping head directly over the tie.

The machine has a 30-second raising and tamping cycle and has satisfactorily raised track ahead of two multiple tamperers.

Longer, larger-capacity jacking cylinders, a water-cooled engine with self-starter, hydraulic brakes, and an improved set-off also are featured on the new Kershaw Super Jack-All.

Try it on your railroad. Kershaw will be happy to arrange a free demonstration without cost or obligation.



Features:

- Tamps on Side of Tie.
- Tamps with Both Vibration and Compaction.
- Equipped with Automatic Tie Finder.
- Longer, Larger-Capacity Jacking Cylinders.
- Water-Cooled Engine with Self-Starter.
- Hydraulic Brakes.
- Improved Set-Off Assembly.
- Rail Dogs Go Under Base of Rail Permitting Tamping of Joint Ties.



P.O. DRAWER 1711

MONTGOMERY,

ALABAMA



Prevent spreading... hold track in gage with Bethlehem gage rods

Wherever you have sharp curves, and the outside joints have a tendency to kick out, cinch them in with Bethlehem Gage Rods. Placed at each side of the joint and at other needed points on the curve, they retard spreading and hold track to gage.

These are forged steel rods $1\frac{1}{4}$ in. in diameter, with either a forged or bent hook on one end, and a heavy adjustable clip with lock washer and nut on the other end. You can specify that the clips be either forged or malleable iron, insulated or non-insulated, whichever you may prefer.

Use Bethlehem Gage Rods where precise align-

ment and track gage are of utmost importance: at heels of frogs, toes of switches, on bridge approaches, in tunnels, and on turntable leads.

A Bethlehem engineer will be glad to go over your gage problems with you and recommend where and how Bethlehem Gage Rods might be of real value to you. Just call our nearest sales office, or write to our headquarters at the address below.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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BETHLEHEM STEEL



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RELOCATING 19.5 MILES FOR THE NORTHERN PACIFIC



"We're on schedule because of the ability of CAT-built equipment to work under rough conditions"

The quote is from Hugh G. King, President of Bud King Construction Co., Missoula, Mont. The company is moving 1½ million cubic yards to relocate 19.5 miles of Northern Pacific line because of construction of the Noxon Rapids Hydroelectric Project in Montana. The job is big and tough. But a fleet of 24 powerful Cat-built machines is keeping it on schedule.

When the job began, reports Mr. King, the D9 and nine D8s on the job "were half under mud." Excavation includes everything from clay to rock. The King contract calls for completing grading, clearing and excavation of all cuts in clay to a 4-to-1 slope. Width of the roadbed is 30 feet in backwater sections, 25 feet in fills and 44 feet in cuts.

The sure-footed Caterpillar track-type machines are everywhere on the job. The D9—king of the crawlers—is pushloading and bulldozing clay from the slopes. One D8 is assigned to finishing cuts of clay. Another is backfilling 3000 cubic yards of gravel per shift on a site

too soft to make grade. Two other D8s are bulldozing clay near the grade to change the land contour for proper drainage.

It takes dependable, all-around equipment like the D9 and D8 to do all these vital jobs and keep the work on schedule. Your Caterpillar Dealer has a complete line of crawlers, ranging all the way up to the mighty 320 HP (flywheel) D9. They have been designed to save you maintenance costs just as the Caterpillar Dealer will save you capital investment by stocking a complete inventory of parts. Call him today for a demonstration on your job. Just tell him when you want the equipment there.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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**THE NO. 1
RAILROAD CONSTRUCTION
EQUIPMENT**

RAILWAY

TRACK and STRUCTURES

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RAILWAY TRACK and STRUCTURES

in this issue:

vol. 54, no. 3

MARCH, 1958

Fantasies today; facts tomorrow	39
Guest Editor Ray McBrien, president of the AREA, makes a plea for more creative thinking on the part of engineering officers.	
How equipment is bought today	40
Interviews with engineering officers bring out changes that have taken place in thinking and in buying practices.	
Program of the AREA convention	43
A complete schedule of events at the Sherman hotel, including a list of meetings of individual committees.	
Exhibit at the Coliseum	44
List of manufacturers participating in the exhibition sponsored by the NRAA, together with keyed floor plan.	
Rails are long but time is short	46
Gang laying long welded rails on SP's Sunset Route must work fast because of short intervals between trains.	
Modern timber framing plant	49
New shop equipped with woodworking machinery is cutting cost of preframing ties for use in making renewals on Huey Long bridge.	
Small gang with big-gang output	52
High-production track-surfacing outfit developed on the North Western has four machines, only eight men.	
Clinchfield works toward lower M/W costs	54
Program of rehabilitation, reorganization and mechanization is already producing substantial economies.	
DEPARTMENTS	
News about people	10
Biographical briefs	10
News notes	13
Manufacturers' helps	15
Dear reader	19
News briefs in pictures	64
Products	68
What's the answer?	88
Association news	106
Supply trade news	106

DON'T MISS ...

Here's the Missouri Pacific's formula for keeping wind-blown dust—and snow, too—from settling on its tracks. It simply builds dirt

levees on the windward side of the track. Their purpose is to serve as deflectors, causing dust to be carried over the track.

... in the April issue



FACTS SHOW WHY

Racor® Dual Driver can pay for itself in two months!

Low-cost driver reduces labor costs and speeds rail laying

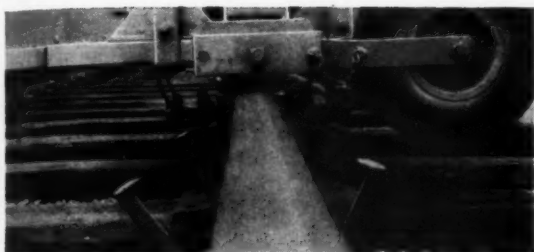
It's true! The new Racor Dual Driver DD4 will often pay for itself in two months or less of rail laying—and at the same time actually speed the operation!

Here's how. A typical rail laying gang using individual air hammers usually consists of at least 21 men. Using two Racor Dual Drivers with automatic spike positioners, the gang is reduced to 9! Moreover, line spiking with the Dual Driver is done more quickly and uniformly.

And here's why. One man with a Dual Driver can drive twice as many spikes as with any other spike driver—without fatigue or need of a relief. After spikes are distributed to the tie plate holes, the DD4 positions them for driving, drives two spikes at once, and automatically resets itself for the next pair. And not only that . . . the Dual Driver can also drive Racor studs!



◀ TYPICAL AIR HAMMER GANG OF 21 MEN REDUCES TO ONLY 9 MEN, WHEN USING RACOR DUAL DRIVERS ▶



The Racor DD4 (above) with positioners mechanically picking up line spikes leaning away from the rail. Spikes are held magnetically until partially driven. The DD4 (below) with positioners magnetically picking up spikes leaning into the rail. Spikes are also held magnetically in this operation. Positioners are not used for driving anchor spikes or Racor studs.



A spiking organization using individual air hammers

OPERATION	MEN
Distributing Spikes.....	2
Setting Spikes.....	8
Air Hammer Spikes.....	8
(4 Driving, 4 Relieving)	
Compressor Operator.....	1
Driving Joint Spikes.....	2
Driving Bent and Missed Spikes}	2
TOTAL	21

A spiking organization using Racor DD4 Drivers with positioners

OPERATION	MEN
Distributing Spikes with Carts.....	3
Straightening Spikes for Positioners.....	1
Line Spiking (2 Machines).....	2
Compressor Operator.....	1
Driving Joint Spikes.....	2
Driving Bent and Missed Spikes}	2
TOTAL	9

Analysis of typical spiking crews indicates a saving of 6 men per Racor DD4. At today's high labor costs this should pay for the unit in two months or less!

- FASTER SPIKING
- SMALLER SPIKING CREWS
- EASIER OPERATION
- UNIFORM SPIKING
- DRIVES BOTH RACOR STUDS AND CUT SPIKES
- REDUCED MAINTENANCE AND DOWNTIME
- QUICK, ONE-MAN REMOVAL FROM TRACK



RAILROAD PRODUCTS DIVISION

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In Canada: Dominion Brake Shoe Company, Ltd.

REVIVE RUNDOWN

... and do



New P-S POWER BALLASTER—4 ways better

1—Out-In-Front Split Crosshead

The new Pullman-Standard Power Ballaster features an out-in-front split crosshead—gives this machine exceptional versatility. The two, free-falling crossheads operate independently or together—allows this new machine to handle both out-of-face surfacing or spot tamping jobs with equal ease.



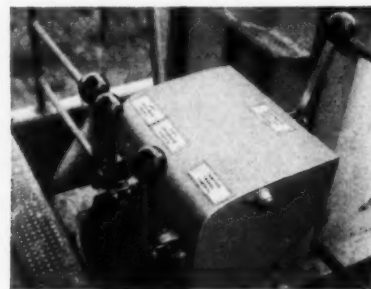
2—High-Quality, High-Speed Tamping

The new P-S Power Ballaster uses a fork-like tamping tip to assure proper tamping action. Ballast penetration is faster and more thorough, undertie compaction is uniform and stable.



3—Tamps Any Raise, Any Ballast

The new P-S Power Ballaster offers both adjustable tamping stroke and selective tamping depth. Operators can use the most efficient tamping force at the best "below-tie" location to meet any raise or ballast condition.



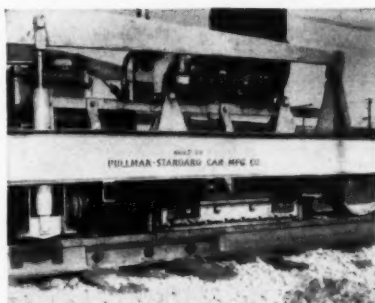
4—Simplified Design, Easy Operation

The use of hydraulic operation throughout simplifies the Ballaster design. The need for maintenance is minimized... users get longer, trouble-free service. Improved operator visibility and new, easy-to-use hydraulic controls permit faster spotting, reduce operator fatigue.

RIGHT-OF-WAY

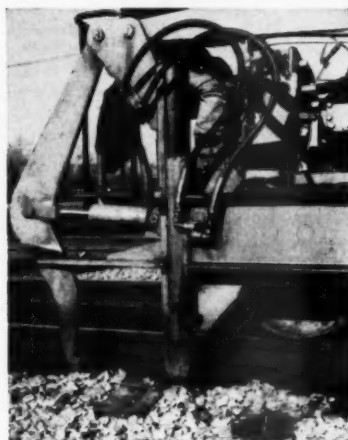
it faster at less cost

New P-S POWER TIE SPACER—3 way economy



1—Quick-Acting Magnetic Hold-Down Assures Fast Spacing

Pullman-Standard uses a powerful, quick-acting magnetic hold-down device to shift and position ties. Gives a shifting range of 20 inches.



2—Tie Tongs Work Independently—Meet Any Condition

With the new P-S Tie Spacer, tie tongs operate independently... can handle any skewed tie condition, pick up down ties and nip and hold ties for spiking. And since the tie is positioned against the machine frame, it is automatically squared.

3—One Operator Handles All Tie-Spacing Jobs

The new P-S Power Tie-Spacer quickly and economically performs all tie-spacing operations—changing the number of ties per rail, straightening and positioning ties in heavy tie-renewal programs and squaring ties ahead of surfacing operations.



For Complete Information on the advantages of the new P-S Tie Spacer or the new P-S Power Ballaster write to the Track Equipment Department, Pullman-Standard Car Manufacturing Company, 1414 Field Street, Hammond, Indiana or The Holden Company Montreal, Que., Canada

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News about people

CANADIAN NATIONAL—D. A. Slack, assistant engineer maintenance of way, has been appointed terminal construction engineer, assigned to construction of a hump yard at Moncton, N. B. M. B. Martin, assistant division engineer, with headquarters at Edmunston, N. B., has been promoted to division engineer at Campbellton, N. B., succeeding J. C. MacLauchlan, who has been transferred to Halifax, N.S. Mr. MacLauchlan succeeds H. B. Titus, retired. P. R. Richards, junior assistant engineer at Edmunston, has been promoted to assistant division engineer at the same point, succeeding Mr. Martin.

D. L. Sinclair, roadmaster with headquarters at Capreol, Ont., has been transferred to Allandale, Ont., succeeding W. J. Deyette, retired. F. D. Allen, assistant roadmaster, has been promoted to roadmaster to succeed S. Benson, transferred. R. H. Menary, operation trainee, has been promoted to division engineer with headquarters at Toronto, Ont., succeeding A. J. Latyn, transferred.

DELAWARE & HUDSON—In connection with a reorganization of the engineering department the position of division engineer has been abolished. N. H. Williams, division engineer of the Pennsylvania-Susquehanna division, with headquarters at Oneonta, N. Y., has been appointed engineer of track at Albany, N. Y. W. J. Schramm, division engineer of the Saratoga-Champlain division, has been appointed assistant to the engineer maintenance of way, with headquarters as before at Albany. J. H. Phillips, assistant division engineer at Albany, has been appointed engineer of structures at that point.

ERIE—Malcom E. Condon has been appointed office engineer, Eastern District, with headquarters at Jersey City, N. J., succeeding Llewellyn H. Edwards, who retired on January 31, after more than 41 years of service with the Erie. The following have been appointed to the position of general foreman: George Jess, Dunmore, Pa.; Edward J. Kelley, Port Jervis, N. Y.; Joseph M. Letro, Jr., Hornell, N. Y.; and Jesse H. Smith, Jersey City, N. J.

FRISCO—E. L. Anderson, assistant to the vice-president—operations, with headquarters at St. Louis, and formerly chief engineer, retired on March 1 after 45 years of railroading. A native of Illinois, Mr. Anderson was graduated from the University of Missouri in 1912 with a bachelor of science degree in civil engineering. Shortly thereafter, he went to work for the Federal government, making land surveys in Montana. Early in 1913 he joined the engineering department of the Frisco. From 1917 to 1919 he was in military service with the U. S. Army, returning

to the Frisco in the latter year. His positions with the Frisco included those of transitman, rail inspector, assistant engineer, roadmaster, division engineer, assistant to general manager, assistant chief engineer maintenance, assistant chief engineer of the Eastern District, and chief engineer. He became assistant to the vice-president—operations early in 1957.

GREAT NORTHERN—L. J. Gilmore, general roadmaster at Spokane, Wash., has retired.

LEHIGH VALLEY—William P. Clark, assistant division engineer at Wilkes-Barre, Pa., has been promoted to division engineer at Jersey City, N. J., succeeding W. P. Sheehan, who has been appointed inspector of transportation with headquarters at New York.

LONG ISLAND—John W. Rowland, supervisor of structures, Jamaica, N. Y., has been promoted to assistant engineer of construction. He has been succeeded by John W. Woodward, supervisor of structures, Pennsylvania, Altoona, Pa.

LOUISVILLE & NASHVILLE—C. E. Stoecker, division engineer, Knoxville, Tenn., has been appointed assistant engineer in charge of the miscellaneous department, office of chief engineer, Louisville, Ky. John W. Leinard succeeds Mr. Stoecker as division engineer, Knoxville & Atlanta division.

MILWAUKEE—K. L. Clark, principal assistant engineer at Chicago, has been appointed division engineer at Savanna, Ill., succeeding E. C. Jordan, named assistant division engineer at Minneapolis. W. C. Whitam, division engineer at Spokane, Wash., has been transferred to Aberdeen, S. D., replacing J. W. McGlothlin, who remains at Aberdeen as assistant division engineer. R. D. Claborn, assistant engineer at Chicago, has been appointed division engineer at Miles City, Mont., to succeed P. H. Geelhart, appointed assistant division engineer at the same point.

NEW YORK CENTRAL—Charles E. Defendorf, engineer of buildings at Chicago, has been promoted to chief engineer with headquarters at New York, succeeding

Foster H. Simpson, who has retired after 42 years of service with the NYC.

Charles J. Barhydt, bridge inspector at St. Thomas, Ont., has been promoted to assistant district engineer structures, with headquarters at Detroit. J. M. Gilmore, assistant district engineer of structures, has been appointed division engineer, with headquarters at Indianapolis, Ind.

PENNSYLVANIA—John P. Garratt, track supervisor at Pocomoke, Md., has been transferred to Buffalo, N. Y., succeeding T. T. Connelly who has been transferred to Johnstown, Pa.

SEABOARD AIR LINE—A. B. Cumbie, Jr., assistant engineer, has been promoted to assistant division engineer with headquarters at Savannah, Ga. Mr. Cumbie was graduated from Clemson College in 1946 with a degree of Bachelor of Science in civil engineering and began his career with the Seaboard in 1953 as an engineer inspector at Hamlet, N. C. He was appointed assistant engineer in 1955.

Obituary

Frank H. Masters, 78, retired chief engineer, Elgin, Joliet & Eastern, died February 7 at his home in Joliet, Ill.

Herman T. Frushour, 75, who retired in August 1949 as assistant vice-president and chief engineer of the Pennsylvania at New York, died January 8 at St. Petersburg, Fla.

Biographical briefs

John L. Cann, 38, who was recently promoted to engineer maintenance of way, Central Region, on the Canadian National at Toronto, Ont. (RT&S, Jan., p. 10), graduated from the University of Manitoba with a B.S. degree in civil engineering. After working summers in various capacities on the CNR he returned to the road in 1943, serving as an instrumentman and assistant engineer at Montreal. In 1946 he was named assistant engineer in the bridge department at Winnipeg (Continued on page 104)



E. L. Anderson
Frisco



Charles E. Defendorf
NYC



Foster H. Simpson
NYC



John L. Cann
CNR

Now...controlling vegetation is easier-cheaper-
with **UREABOR[®]** weed and grass killer



UREABOR can prove to be your most practical way of keeping any area weed-free! It offers all the features you want in a weed killer...convenience, safety, economy, and lasting effectiveness. With this granular dust-free material, one easy application—dry—at low rates of 1 to 2 lbs. per 100 sq. ft. gives you full season control.

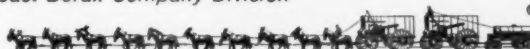
UREABOR is a specially compounded formulation of sodium borates and substituted urea. It is a highly efficient weed killer that is nonflammable, noncorrosive to ferrous metal, and nonpoisonous when used as directed. It is always ready for use; there is nothing to mix—no water to haul.

UREABOR can be applied to small areas by hand. For treating larger areas, special spreaders in hand-operated and power-driven models are available.

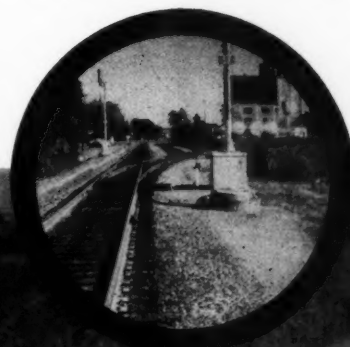
UREABOR can protect your timber structures, yards, signals, and buildings from fire-hazardous weeds easier and cheaper than any other way we know. Write for more information.

UNITED STATES BORAX & CHEMICAL CORPORATION

Pacific Coast Borax Company Division

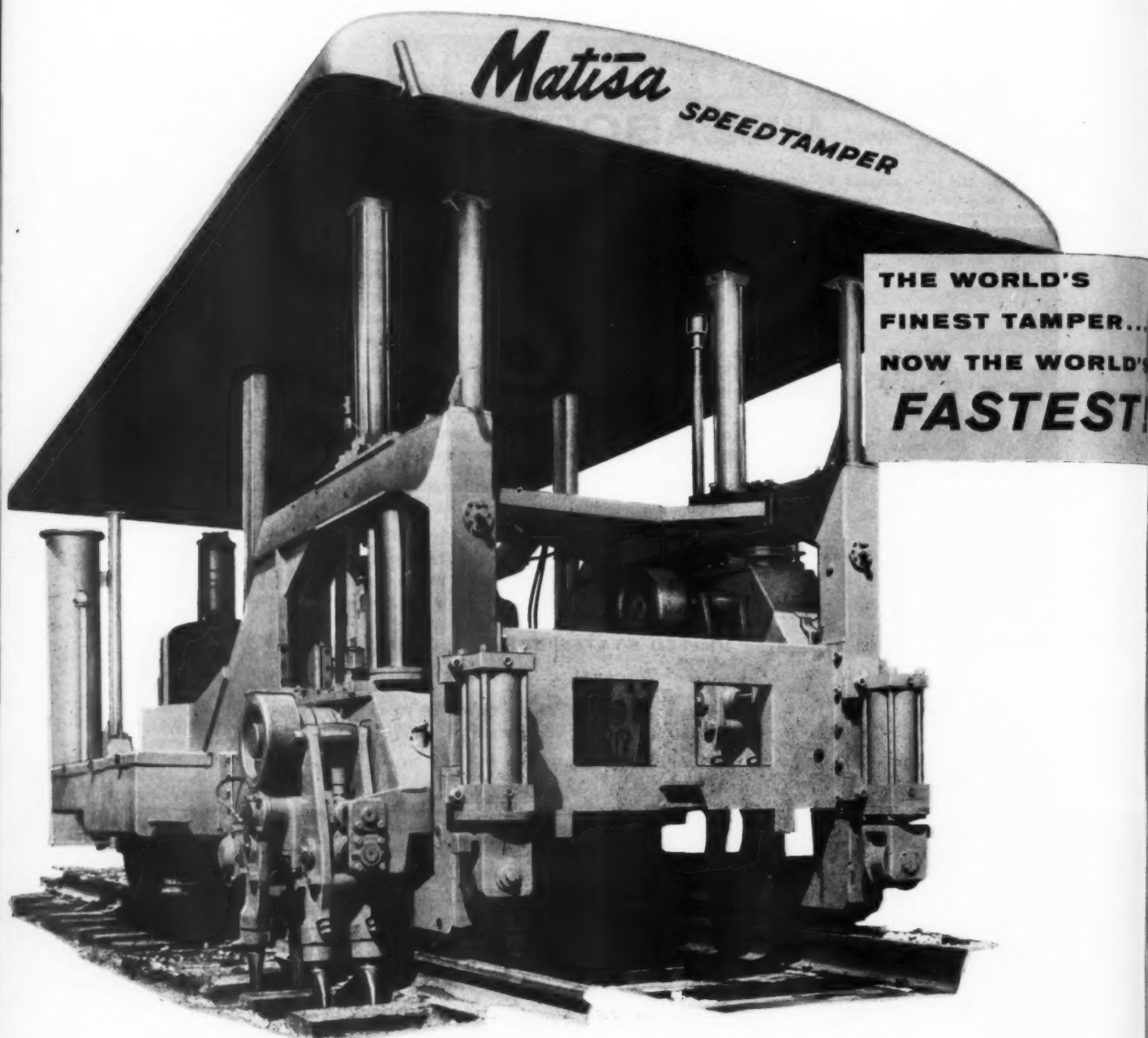


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Control of vegetation
for a full year in areas
such as this can now be
accomplished for as
little as 30¢ per
100 sq. ft.

the NEW



Here is the world's highest tamping efficiency

In dollars per foot of perfectly tamped track, the *Matisa Speedtamer* will give your M/W budget a real assist. This machine retains the unbeatable Matisa principle of vibration-compaction tamping with the machine load always on tamped track, but now has many **PLUS** features:

Now hydraulically positioned tamping units for positive action, faster production. The *most efficient use of hydraulics* has been applied throughout the machine.

Now V-belt drives with multiple disc clutches — adds safety, cuts maintenance, eliminates gears and noise.

Now instantaneous split-head operation switches from speed surfacing to deep tamping without interruption.

Now pneumatic control valves with assured separate air supply from a small compressor on the diesel engine.

For details, write for the New *Matisa Speedtamer* brochure.

Lease and optional purchase plans available.

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News notes...

RAILWAY

TRACK and STRUCTURES

... a résumé of current events throughout the railroad world

Railroads in Kansas want something done about excessive taxation of railroad property. The Kansas City Southern and the Missouri Pacific have filed suits seeking recovery of alleged overpayment of taxes. Equalization of assessments is the issue. A state study, it is reported, showed local assessments on 23 per cent of market value, while railroad property is assessed in the 60-per cent bracket. Some 60 cases and reported overpayments of almost \$1,500,000 are involved.

•

The Interstate Commerce Commission doesn't like the Symes plan for creation of a federal-government agency to acquire rolling stock for lease to railroads. It has said so in a report commenting on a pending Senate bill to implement the plan. The commission "would hesitate to recommend, except as a last resort," a plan providing for "direct participation by the federal government in privately owned business enterprises." Moreover, it is not convinced that the plan would "result in any appreciable improvement in the overall freight-car situation. . . ."

•

Some improvement in railroad carloadings later this year is expected by industrial traffic managers, according to the results of a recent poll. A good third of the respondents expect an upward turn beginning at various dates between April 1 and October 1. Commenting on the reasons for the recent decline in railroad business, many of the replies cited increased freight rates and "poor rail service."

•

Trucking interests were being given a chance to tell their side of the story as the Senate's Surface Transportation Subcommittee began its second series of public hearings February 17 on the "deteriorating railroad situation." The railroads were heard in January. The truckers, it was immediately apparent, don't want any part of the railroads' proposals that they be given the right to make competitive rates and to operate other forms of transport.

•

A Canadian Royal Commission has ruled that the Canadian Pacific doesn't have to put firemen aboard yard and road freight diesels. The commission came up with this decision after months of study following its appointment as the aftermath of a strike, initiated by the Brotherhood of Locomotive Firemen and Enginemen, that idled 70,000 CPR employees for nine days early last year. The strike came in the wake of a conciliation board decision upholding the CPR's contention that firemen were not necessary on yard and freight diesels. Union leaders flatly rejected the Royal Commission's decision and predicted there would be another strike after the union's current CPR contract expires May 31. This question now arises: What effect, if any, will these developments in Canada have when U. S. roads reopen negotiations with their firemen in 1959?

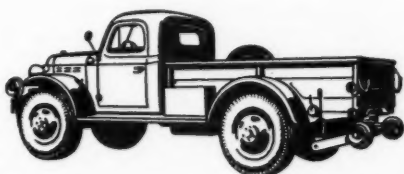
Get your men there fast—on road or rail with



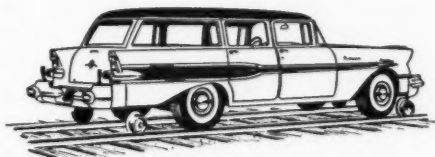
Fairmont

THE FAIRMONT A30 SERIES C HY-RAIL MOTOR CAR (pictured on the left) is one of a group of Fairmont-adapted vehicles that are saving time and money for American railroads. The A30 is ideal for Track Supervisors . . . Track Patrolmen . . . Signalmen . . . and Telegraph Linemen. You can't find a better way to cover your territory rapidly, efficiently and inexpensively. Your men can travel on the track they're responsible for—or take to the highway to save time . . . reduce travel distance . . . bypass trains or blocked sections. What's more, men, material and tools are hauled right to the work site. Hy-Rail cars can be set off or rerailed by one man at any grade crossing. Modernize and mechanize your crews with a Fairmont Hy-Rail car.

Other Hy-Rail Motor Cars by Fairmont



A35 SERIES A HY-RAIL CAR is powered by a 6-cylinder engine and offers four-wheel drive and four-speed transmission with under-drive. Load capacity: 2600 lbs. Primarily for maintenance service.



A34 SERIES B HY-RAIL CAR offers a Pontiac Station Wagon body; a rugged 252-h.p. V-8 engine; Hydra-Matic drive; power braking and steering. Rail wheels are operated hydraulically and are locked in position mechanically. Eight passengers or driver plus 1050 lbs.

FAIRMONT RAILWAY MOTORS, INCORPORATED FAIRMONT, MINNESOTA

MANUFACTURERS OF BALLAST MAINTENANCE CARS, DERRICK CARS, OIL SPRAY CARS, GROUTING OUTFITS, TIE RENEWAL EQUIPMENT, RAIL RENEWAL EQUIPMENT, WEED CONTROL EQUIPMENT, HY-RAIL CARS, TRACK MOTOR CARS, PUSH CARS AND TRAILERS.

Helps from Manufacturers

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

EARTHMOVING EQUIPMENT. The manufacturer's pocket-sized line catalog, designated MS-1272, has been revised to include the turbo-charged HD-21 diesel-powered crawler tractor, and the TS-160 motor scraper. Each unit in the manufacturer's line is pictured in the booklet which gives information about the size, capacity, weight, horsepower and other pertinent facts of each unit. (Write: *Construction Machinery Division, Tractor Group, Allis-Chalmers Manufacturing Company, Dept. RTS, Milwaukee, Wis.*)

CRANE EXCAVATORS. A new three-color, 36-page illustrated catalog has been issued to cover the complete specifications and capacities of the entire Schield Bantam equipment line. Also, all 10 attachments are described. In addition, it shows job-application information, engineering features, on-the-job reports and job action photographs. (Write: *Schild Bantam Company, Dept. RTS, Waverly, Iowa.*)

MAINTENANCE MACHINERY. Two new bulletins have recently been released by the manufacturer to describe the production advantages of the Model BP Spike Puller and the Spike Hammer. The bulletins, designated 273 and 279, have two pages each and incorporate illustrative photographs and schematic drawing along with the descriptive text. Bulletin 273 points out that, by making the Spike Puller self-propelled by means of a more powerful engine and a hydraulic motor drive, one man is saved in this operation. Bulletin 279 describes how a crew of three men can drive about 800 spikes an hour with the Spike Hammer. (Write: *Nordberg Manufacturing Company, Dept. RTS, Milwaukee 1, Wis.*)

CROSSING FLANGEWAYS. The advantages of a steel flange-way crossing guard, called "Guardmaster," are described in a four-page, two-color brochure. Several installations and the method of installing also are shown by photographs and line drawings. (Write: *Kasle Steel Corporation, Dept. RTS, Rail and Track Department, 4343 Wyoming Ave., Detroit 32, Mich.*)

ROAD MACHINERY. A 32-page brochure describing the manufacturer's complete line of road-machinery products has been issued. This book outlines the extra features of the motor graders, tandem and three-wheel rollers, and the maintainers. It also illustrates the working parts of this equipment by detailed photographs. (Write: *Huber-Warco Company, Dept. CLF-RTS, 205 N. Greenwood St., Marion, Ohio.*)

CONCRETE PRODUCTS. Four bulletins have been released by the manufacturer for describing Amdeck concrete bridges, and Hi-Hed, Lo-Hed and Inner Circles precast reinforced concrete pipe. The Amdeck bulletin is an eight-page, four-color booklet showing on-the-job applications of precast, prestressed and pretensioned concrete bridge decks. The Lo-Hed bulletin is a 12-page, two-color booklet showing the discharge and hydraulic properties of the concrete pipe in tabular and graph form, as well as installation illustrations. The Hi-Hed booklet is a three-color 12-page bulletin showing on-the-job illustrations, headwall designs, and in graphical and tabular form the discharge values, physical characteristics and hydraulic properties of this type of concrete pipe. The Inner Circles bulletin is an eight-page, two-color booklet which describes the use of an elliptical-shaped concrete pipe designed for underground conduit and tunnel purposes. Also, it shows how this pipe, because of its shape and length, can be passed through tunnels of its own dimensions and added to the end. (Write: *Massey Concrete Products Division, Dept. RTS., American-Marietta Company, 101 E. Ontario St., Chicago 11, Ill.*)



Maintain Operating Ratios..



Interested in maintaining your operating ratios despite rising costs and declining revenues? You can do it by utilizing these (and other) Kershaw trackwork machines to cut your maintenance costs. And you can pay for the machines out of maintenance savings, often in the first year.

See them for yourself at Kershaw booths 13-N through 17-N and booths 24-N through 26-N at the Coliseum in Chicago during the A. R. E. A. Convention. Kershaw representatives at these booths will be happy to give you complete details on these and many other great Kershaw machines.

Kershaw Heavy Duty Ballast Regulator (top left) is used for shaping, regulating, de-weeding and scarifying the ballast shoulder. It has heavy-duty truck type axles and a longer wheel base. The Ballast Regulator features a Road Crossing Scarifier (left) which removes dirt or Macadam from road crossings in minutes. A Rotary Brush Assembly may be used to fill empty cribs and place excess ballast on the shoulder while another feature, the Reversible Wing Assembly, permits operation with the Ballast Regulator traveling forward or backward.

Kershaw Tie Bed Cleaner is used in timbering gangs to scarify loose ballast in tie beds and under rail, permitting easy insertion of the new tie. It is used behind the Kershaw Two-Wheel Kribber in skeletonizing jobs to push ballast from under rails.

Now ...more than ever ... Recognize This Symbol of Leadership...

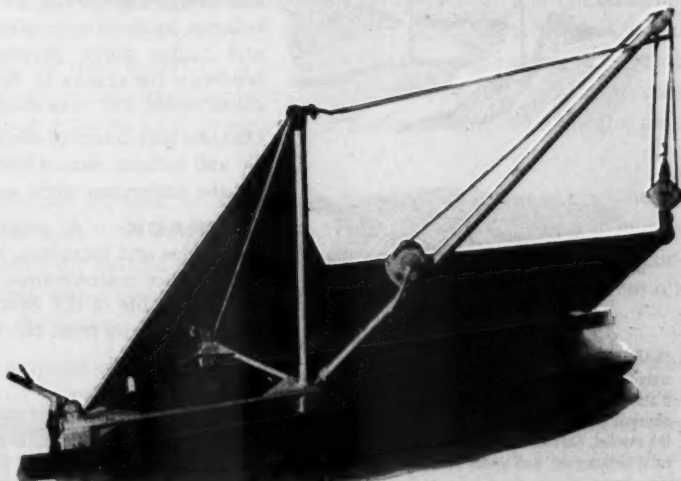
with THESE KERSHAW MACHINES!

Kershaw Multiple (Spot) Tamper may be used as a multiple tamper during the work season and as a spot tamper the remainder of the year. As a spot tamper, it can maintain surface on 75 to 150 miles of track a year, and is the only machine on the market which tamps through switches. It is completely hydraulically operated.

Tamping bits on the Kershaw Tamper actually go under the tie. The four independent tamping heads provide complete versatility of operations since they may be operated all four at the same time, in pairs or individually. The Kershaw Tamper will effectively tamp a raise from zero to eight inches.

Kershaw Track Broom is a one-man operated machine used in yard cleaning and in surfacing gangs to remove waste or excess ballast from between rails, placing it on the ballast shoulder. The machine also may be used to remove snow from switches (it sweeps through switches) and to remove sand and dirt which have blown in to fill main line tracks.

Kershaw Utility Derrick may be used to remove rail laying and tie replacing equipment from track. It is operated by one man, has a capacity of 2,500 pounds and may be removed from the track by only two men.



KERSHAW
MANUFACTURING CO. INC.

P.O. DRAWER 1711



MONTGOMERY, ALABAMA

*See These and Other Kershaw Machines
at the A.R.E.A Convention in Chicago*

BOOTHS 13-N THROUGH 17-N and BOOTHS 24-N THROUGH 26-N

FABCO Self-Sealing TIE PADS

DEMONSTRATE "Perfect Seal and Long Life"

After 12 years' service FABCO Self-Sealing Tie Pads are today recognized as superior because of their Permanent Resiliency, Quick and Lasting Bond, Perfect Seal, and Long Life.

The Improved and Patented FABCO SEALER

U. S. Pat. No. 2,770,421

after 4 years of extensive and exacting use is still providing a perfect bond between pad and tie, while the pads themselves are practically as good as new. In a word, FABCO Self-Sealing Tie Pads and the improved and patented FABCO Sealer have positively lived up to all

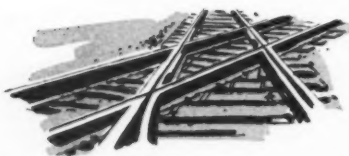
predictions and claims after four years of intensive service . . . and are still going strong!

Increasingly wider use of FABCO Self-Sealing Tie Pads by the railroads of North America is convincing evidence that they are the best tie pad on the market.

Write for Latest Facts and Figures

FABREEKA* Pads and Units

Successfully used for 25 years to Reduce Impact Shocks,
Vibration, Noise and Maintenance



*FABREEKA is unaffected by weather conditions, resists steam, heat, cold, brine, abrasive action, and has a static load breakdown of 14,000 lbs. per sq. in. Its physical properties are found in no other material on the market. Fabreeka is also widely used in passenger cars, locomotives, and under heavy machinery.

IN BRIDGES — Used as Pedestal Pads, Bridge Shoe Pads and Ballastless Bridge Deck Pads, Fabreeka absorbs impact shock and vibration; distributes loads evenly; eliminates abrasive action between masonry plates and bridge seats; prevents flaking and cracking of concrete; reduces tendency for cracks to develop in steel decking; prolongs bridge life; reduces noise; and cuts maintenance cost.

On steel and concrete decked bridges . . . Fabreeka Pads eliminate need of tie and ballast, reduce foundation depth, and proper clearance is obtained for the underpass while saving in excavation and concrete work.

IN TRACK — At points of severe service — under crossings, in scales, turntables and retarders, Fabreeka Pads absorb impact shocks and vibration, reduce maintenance, and prolong life. Under crossings Fabreeka increases the life of the Manganese points and rail ends through cushioning of impact blows from the wheels.

FABREEKA

1190 Adams Street
Boston 24, Massachusetts

NEW YORK • CHICAGO • DETROIT
TOWSON, MD. • CLEVELAND
PHILADELPHIA • PITTSBURGH
OAKLAND • LONG BEACH
SPARTANBURG • MILWAUKEE

Canadian Representative: INTERNATIONAL EQUIPMENT COMPANY LTD., MONTREAL

Dear reader:

Where to now in mechanization?

At some point in the dim past a maintenance man conceived the idea that the internal combustion engine, applied to a particular task, would make the work easier. Perhaps the matter of economy also entered his mind, but if it did the chances are it was secondary.

This man might have been a roadmaster or a bridge and building supervisor. Or he might even have been a track laborer whose primary aim was to relieve the daily strain on his back that came from pumping a hand car. The motive is not important now. The important thing is that a process was set in motion that slowly gathered momentum.

At first, and even to some extent today, the men who sought to apply machine power to maintenance work were intent on devising individual machines for specific tasks. They didn't approach the problem of mechanization from an overall viewpoint, such as an automobile manufacturer does when tooling up for a new model. They couldn't. They were working in a highly specialized field and first had to build up a background of technological know how. But eventually they were tackling the more difficult problems, and the time came when entire operations were almost completely mechanized. Rail laying was probably the first. Then came track surfacing. Then tie renewals.

Now we have entered a new phase. Although progress continues in the development of better machinery, it has reached the point where a railroad can look at mechanization as an overall proposition. The maintenance man can actually "design" a maintenance policy based on mechanization, much as a bridge engineer designs a bridge.

There are plenty of examples that illustrate this point. The one most immediately available has to do with the Clinchfield. A feature article in this issue relates how this road undertook a long-range program to reduce M/W costs. The availability of complete complements of machinery for the major operations made it possible for the road to incorporate mechanization as an integral phase of its program.

It has become apparent, in other words, that the application of machinery to maintenance work is no longer largely a matter of buying equipment more or less at random for various tasks. The tendency, rather, is to acquire machines in accordance with a comprehensive plan in which each unit has a definite relationship to the whole.

This viewpoint is in no way weakened by the improvements now being made in machinery and by further developments that are in prospect. A trend toward the use of larger and more complicated machines designed to perform more work with fewer men is inevitable. Electronic controls, radio and other means of achieving the highest possible degree of automation are certain to come more strongly into the picture.

Whatever form these developments may take, it seems safe to predict that roads, such as the Clinchfield, that have mechanized on a comprehensive basis will have little difficulty fitting further developments in machinery into their overall plan.

MHD



“LET ME AT ‘EM!”

... Just a moment, son. We certainly do admire your spirit, but as you grow older you'll learn that there's much more to weed control than a spraygun.

... Like having just the right chemicals, the right equipment, and the men who know how to make the best use of both.

... And with Bogle these elements, combined with continuous "on-track" research, add up to the most effective weed and brush control at lowest possible cost.

COMPLETE WEED AND BRUSH CONTROL SERVICE



THE R. H. BOGLE CO.

ALEXANDRIA, VA.

MEMPHIS, TENN.

WANT HELP IN KEEPING ACCIDENT COSTS DOWN—

RIGHT-OF-WAY CREWS ON TARGET—AND ON TIME?



AJAX Drinking Water Service offers 3 BIG ADVANTAGES FOR TRACK MAINTENANCE GANGS

- 1** AJAX Cups and equipment provide the cleanest, safest and most time-saving way to take clean, fresh water to gangs working on the right-of-way.
- 2** Crisp, clean AJAX Cups reduce the risk of spreading infections, like the common cold, that cause lost days . . . and thus help you keep important maintenance work on schedule.
- 3** The safety messages imprinted on AJAX Cups (at no extra cost) provide frequent reminders that help prevent accidents — another source of lost time and extra costs.

AJAX Complete Drinking Water Service was developed out of long experience with railroad work. It is ideally suited to the needs of track maintenance work . . . actually works three ways to help you save time, maintain schedules, and cut operating costs.

WRITE TODAY for samples of imprinted AJAX Cups and new folder giving details of this complete drinking water service.

GET THE COMPLETE STORY AT OUR BOOTH 178-A—NRAA EXPOSITION, CHICAGO, MARCH 10-13



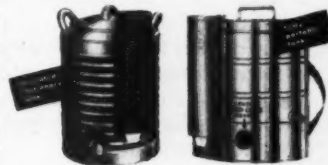
United States Envelope Company

General Offices: Springfield 2, Massachusetts

15 Divisions from Coast to Coast



AJAX® CUPS — wedge-shaped, easy to hold—dispense open, ready to drink from; come in 4, 6 and 7 oz. sizes, imprinted with assorted stock safety messages at no extra cost — or your own message to order.





RTW HYDRAULIC TRACK LINER

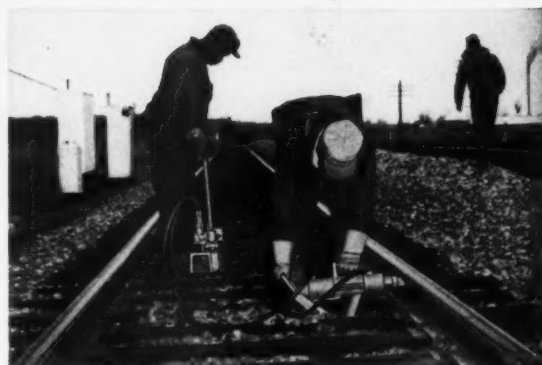
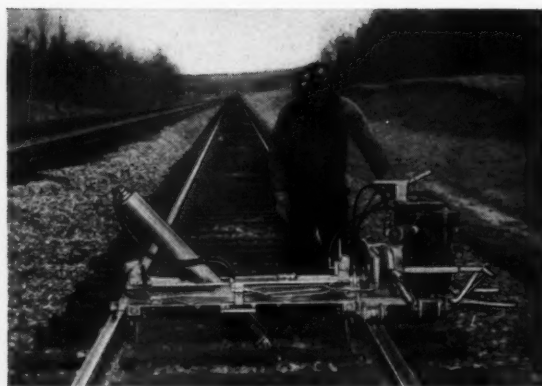
**More track lined per hour with
Minimum effort and expense**

The RTW Hydraulic Track Liner—Model P-O—was devised and designed by railroad engineers thoroughly familiar with maintenance of way problems.

A light rigid self contained attachment with double flanged rollers used with the P-O Track Liner adjusts to any height or weight of rail. It supports a portable air-cooled 8 horsepower gasoline driven engine. This power plant can be used with two hydraulic rams for lining thru switches, road crossings, etc., as well as supplying power for the attachment for out-of-face lining. Its light weight and portability reduces operator fatigue.

Railway Trackwork Co.

3207 KENSINGTON AVE., PHILADELPHIA 34, PA.



Upper left—Model P-O gasoline engine powered Hydraulic Track Liner operating two hydraulic rams.

Upper right—Model P-O gasoline engine powered Hydraulic Track Liner operating attachment with double flanged track rollers, adjustable for any height and weight of rail.

Lower left—Model P-O gasoline engine powered Hydraulic Track Liner and two hydraulic rams mounted on wheelbarrow type frame that can easily be operated or transported by one man.

Lower right—Model H-O Hydraulic pump, light weight, hand operated, that will supply power for one (as shown) or two rams. Ideal for small gangs.

This equipment is also available mounted on a wheelbarrow type frame that can be transported by one man for use in heavy traffic areas.

The hand operated hydraulic pump, available with either one or two hydraulic rams, is ideal for spot lining with small gangs.

The interchangeable units of these highly portable power operated Hydraulic Track Liner combinations afford a smaller force, the equipment necessary to do the work that normally would require heavier oversized machines and a large crew.

Write for complete details today

TRACK MAINTENANCE MACHINERY

Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders • Rail Drills • Ballast Extruders • Bit Sharpeners • Tie Nippers • Grinding Wheels • Cut-off Wheels • Track Liners

*this is an **orton**
160-ton diesel wrecker
but...*



today
it's driving piles!

EVERY ORTON CRANE has:

- ... **ALL** power shafts carried on sealed anti-friction bearings—**NO** exceptions.
- ... **ALL** motion entirely independent.
- ... **NO** jaw clutches—**not even in travel mechanism.**

ORTON VERSATILITY is exemplified by this combination diesel wrecker-pile driver. **YOUR** machine, built to your requirements . . . delivered for less than a "production line" crane!

ORTON EXPERIENCE always gives you the very latest proved design. ORTON, in more than fifty years of building the finest cranes, has been *first* with Torque-Control, *first* with air-operated controls, *first* to recognize that each handling job is unique.

So, when you consider cranes, consider ORTON *first* . . . it is first!

orton

CRANE AND
SHOVEL CO.
608 S. Dearborn Street
CHICAGO 5, ILLINOIS

THE MOST POWERFUL NAME IN CRANES



BALLAST CLEANING

*Just Ask the Railroads
That have used*

SPENO

BALLAST CLEANING



SPENO

RAIL GRINDING



The repeat business
which we have enjoyed
through the years
proves the value
of our service and
prompts our slogan.

*Just Ask
the Railroads
That have
used us!*



FRANK SPENO RAILROAD BALLAST CLEANING CO., INC.

306 North Cayuga St., Ithaca, N. Y.

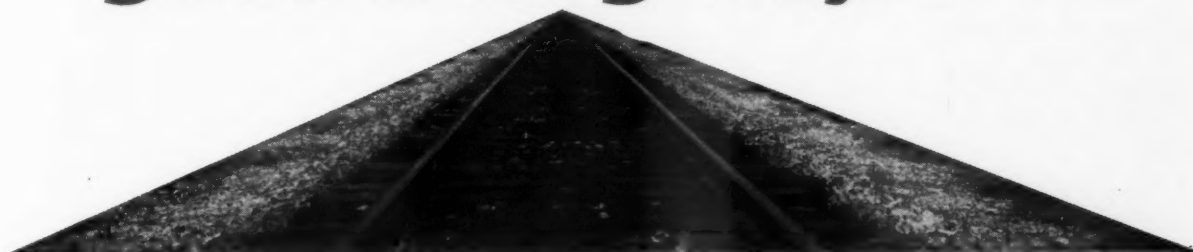
RAIL GRINDING



A little UROX[®]



goes a long way!



... Gives clean-as-a-whistle weed control!

General Chemical's sensational new Urox weed killer is just the ticket for cost-conscious maintenance-of-way experts. All over the country, they're finding that Urox gives *better* control, *longer-lasting* weed control, at lower cost!

Here's why: Urox is so effective that single applications have given outstanding control *for as long as 12 months* on a wide range of annual and perennial grasses and broad-leafed weeds.

Results "carry over": Light booster doses keep most areas weed-free from season to season. You save year after year, because light follow-up treatments keep weeds down . . . or standard doses can be applied at longer time intervals.

Easy to use, too: Urox comes in free-flowing granular form . . . can be applied with inexpensive equipment or in shaker cans (for small clean-up jobs). No water needed. Urox is non-flammable when used as directed . . . has very low toxicity to animals.

LOGICAL QUESTION: Isn't it high time you investigated this sensational new weed killer?

Get the whole story!
Mail this coupon!



Weed Killer Department

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

- ☐ Please send free folder giving complete information on new Urox herbicide.
☐ Please have representative call.

Name

Title

Company

Address

City Zone State

RT-3

No More Trenching!
No More Jacking up Track!

This WOOLERY

***Tie-removing Team Now Eliminates
This Slow, Costly Method!***

Use the WOOLERY TIE-END REMOVER in conjunction with the improved model NU WOOLERY TIE CUTTER! It's the *perfect team* for greater savings on tie renewals—and gives *smoother, safer track, too!*

**FOR HIGHEST EFFICIENCY, TWO
TIE CUTTERS should be used with
one tie end remover**

The trend toward heavier rail and double shoulder tie plates has made removing tie-ends increasingly difficult. With the WOOLERY Tie-end Remover, this task can now be done in *less than a minute by one man with no more effort than that required to turn a valve!* See how simply and efficiently this WOOLERY team works—follow the "1-2-3." steps of tie-removal.

SPECIFICATIONS

- ENGINE Wisconsin air-cooled 4-6 H.P.
- PUMP 1,500 P.S.I. built-in relief valve, 1 gal. reservoir.
- DRIVE Double V-Belt.
- CYLINDER 3" bore, honed finish, double-ended, double-acting. Hardened, ground and chrome plated rams equipped with red wipers.
- TRACK ROLLERS 6" self-centering, insulated.
- NET WEIGHT 360 pounds.
- CRATED WEIGHT 490 pounds.

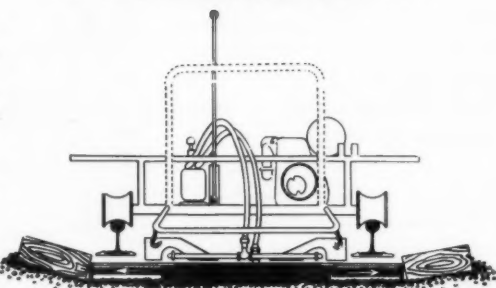
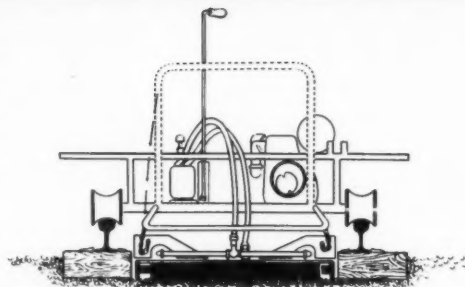
After the tie has been cut on both sides by the WOOLERY Tie Cutter, the operator of the Tie-end Remover—who follows closely behind so that operators can assist each other in removing machines from track)—lifts the center section out with tie tongs.

A double-ended hydraulic cylinder is then lowered into the tie bed.

A simple turn of the valve moves these two pistons outward, pushing the tie-ends completely clear of the rail—whether working with single or double shoulder tie plates! The crib is now open—and only the necessary amount of ballast is removed to admit the new tie.

There has been no trenching or jacking up of track—thus line and surface of track are maintained, soft spots and humpy track are eliminated—the new tie rests on a firm bed and little or no tamping is necessary.

**SEE
OUR EXHIBIT
in booth
4-S**



ESTABLISHED 1917

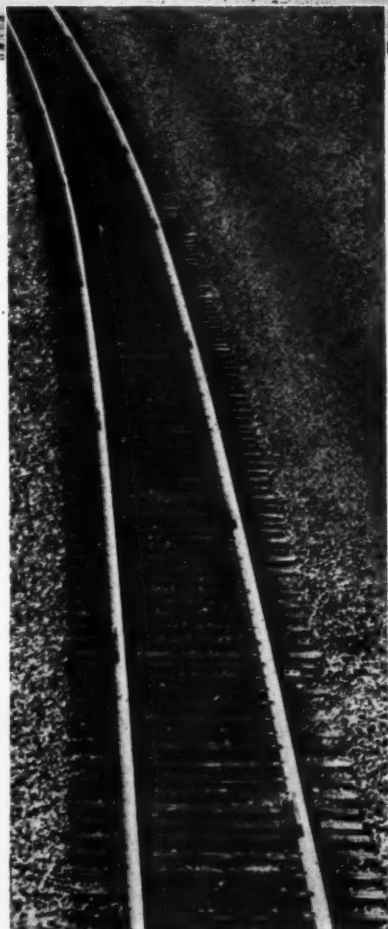
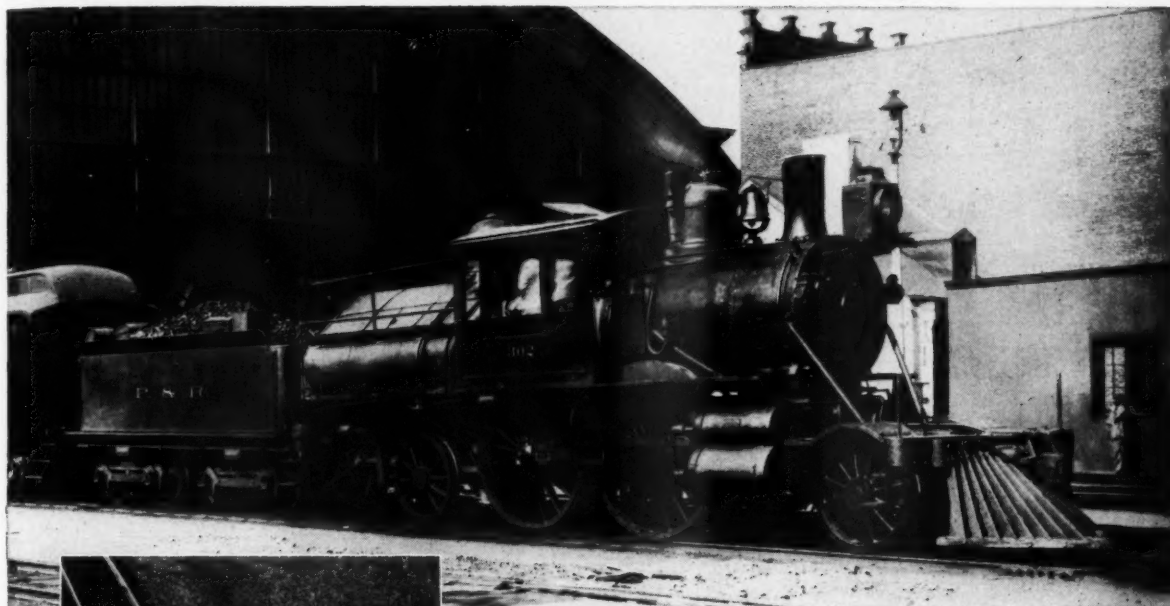
WOOLERY MACHINE CO.

MINNEAPOLIS MINN.

Also manufacturers of Woolery Heavy Duty Weed Burners, Bolt Tighteners, Spike Drivers, Track Tool Transporters, Motor Cars and Joint Oilers.

The Old Steam 2-4-2's Have been retired...

Photo Courtesy of Reading Company



But the pressure-treated
ties they pounded

ARE STILL IN SERVICE

If ever proof was needed that pressure-treatment considerably prolongs the service life of forest products used by railroads, pressure-treated ties are that proof. Many pressure-treated ties put into service back in the 1890's have out-last-ed the locomotives and rolling stock they carried.

It seems logical then to take advantage of the proved savings made possible by using pressure-treated wood for car lumber, panel grade crossings, poles, fence posts, bridge timbers and other rolling stock and right-of-way applications. For example, pressure-treated car lumber offers many roads the opportunity for a multimillion dollar cost reduction program. In fact, switching to pressure-treated lumber may well be the key to major savings and increased car revenue.

If you would like to have more facts, ask a Koppers representative to discuss the pressure-treated wood story with you.

WANT TO KNOW HOW PRESSURE-TREATED WOOD CAN SERVE AND SAVE FOR YOU?

This 12-page booklet "Clear Track to Cost Reduction" is the story of how a major railroad can save \$49 per-year per-car by using pressure-treated lumber. If you are interested in getting a copy, write today.

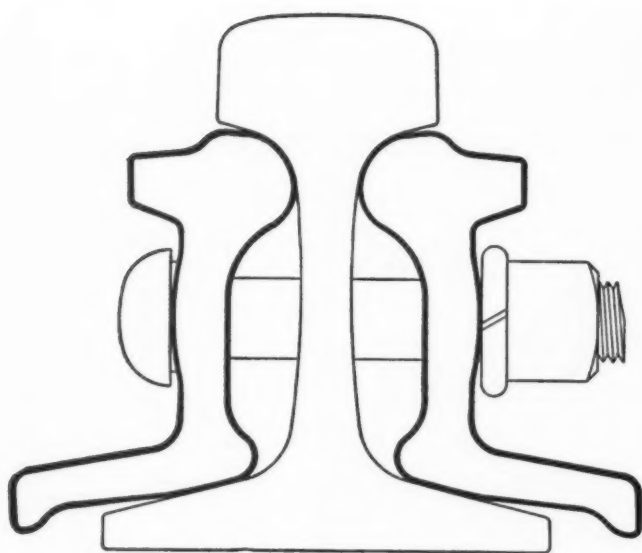


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Wood Preserving Division, Koppers Company, Inc., 774 Koppers Building, Pittsburgh 19, Pa.



KOPPERS
PRESSURE-TREATED
WOOD

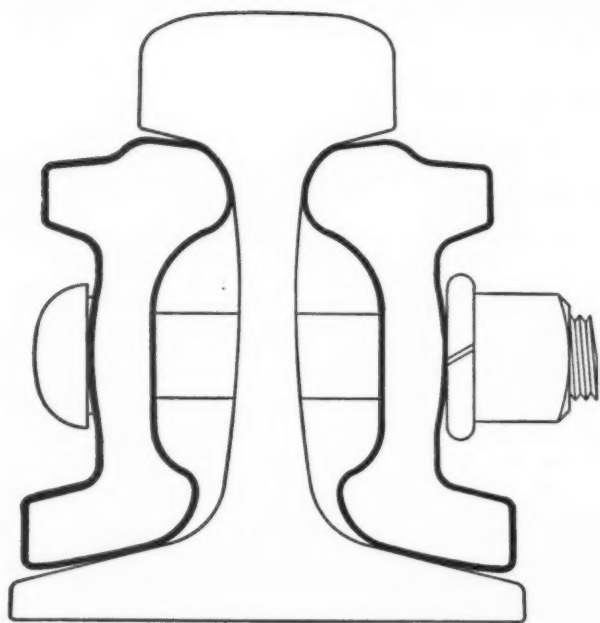


A NEW CONCEPT IN RAIL JOINTS

Less Wear

Longer Life

Sure-Fit Headfree Joint



Tighter Bolts

Reduced Stresses

RAIL JOINT COMPANY
DIVISION OF POOR & COMPANY (INC.)
50 CHURCH ST. NEW YORK 7, N. Y.



Photo courtesy, Erie Railroad Company, Cleveland, Ohio

Now—rubber makes the grade at R.R. crossings

In the past two and a half years, an estimated one million cars and trucks—traveling at a 40 to 60 mph clip—have pounded over this grade crossing in West Salem, Ohio. Add the countless trains that have roared through at 70 mph—and the fact that it's never needed a penny's worth of maintenance is a real eye opener.

Credit belongs to the unique steel-reinforced rubber pads bridging the crossing. Developed by the G.T.M.—Goodyear Technical Man—and his colleagues, they will not splinter or shatter like timber. They're impervious to changing weather that alternately buckles and softens black-top. They absorb the shock of passing trains rather than crumbling like concrete. They're flexible—so they don't shear off

or break like metal grating. And they're quiet!

They have many never-before advantages, too: Each unit has a flexible, rubber lip that seals out water and dirt that would befoul the ballast. Additional units are easily added at ends of a crossing if the road is widened. And it stays *smooth*—indefinitely.

Can you afford, then, to overlook a material that will slash such a huge chunk out of your grade crossing maintenance costs? Its savings have already been *proved* in a number of several-year-old installations. For details, write Goodyear, Industrial Products Division, St. Marys, Ohio, Los Angeles 54, California, or Akron 16, Ohio.

RUBBER RAILROAD CROSSINGS BY

GOOD YEAR

THE GREATEST NAME IN RUBBER



OSMOSE IN-PLACE

WOOD PRESERVATIVE TREATMENT *can* TRIPLE the LIFE of TIMBER BRIDGES

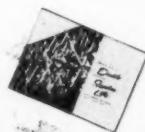
Inspection, as practiced by most railroads, merely locates what timbers must be **REPLACED**. Osmose Inspection Crews locate timbers that can be **TREATED** and **SAVED** before it's necessary for expensive replacements.

Timber failure in these structures occurs in only a few critical areas . . . 95% of every condemned timber is sound. Osmose experts know **WHERE** to look for decay and **WHAT** to do about it before trouble starts. This can save a railroad hundreds of thousands of dollars annually.

For instance, a recent Osmose customer had scheduled replacement of a 40 year old bridge within six years at a cost of \$500,000. However, Osmose inspected and treated this 3/4-mile creosoted Southern yellow pine bridge for approximately \$25,000 and **SAVED** it for at least an additional 20 years of service. Osmose can do a similar money-saving job for *your* wooden structures, for roughly 1/20th to 1/40th of their replacement cost. Let us send you the complete story.

Send for this Booklet

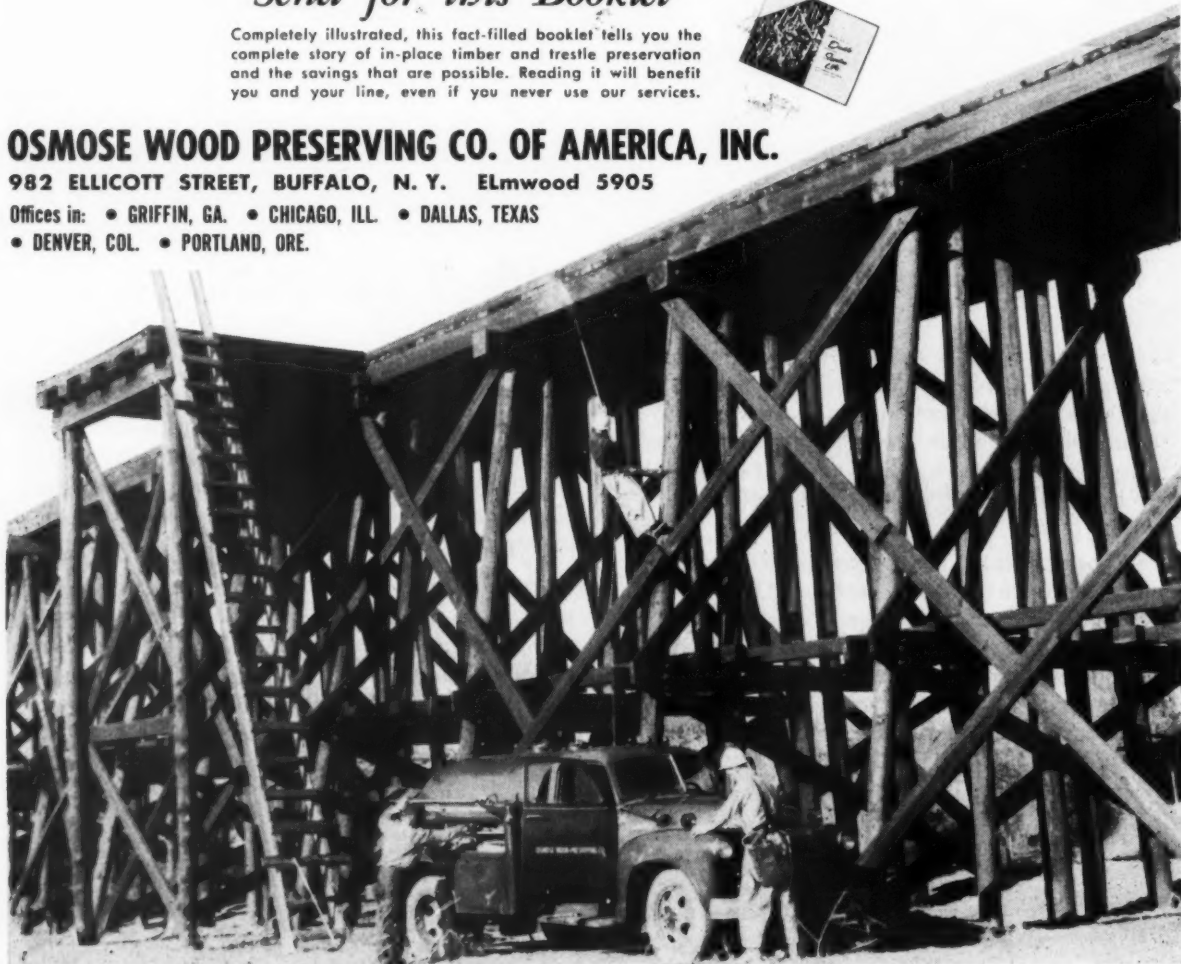
Completely illustrated, this fact-filled booklet tells you the complete story of in-place timber and trestle preservation and the savings that are possible. Reading it will benefit you and your line, even if you never use our services.



OSMOSE WOOD PRESERVING CO. OF AMERICA, INC.

982 ELLICOTT STREET, BUFFALO, N. Y. Elmwood 5905

Offices in: • GRIFFIN, GA. • CHICAGO, ILL. • DALLAS, TEXAS
• DENVER, COL. • PORTLAND, ORE.



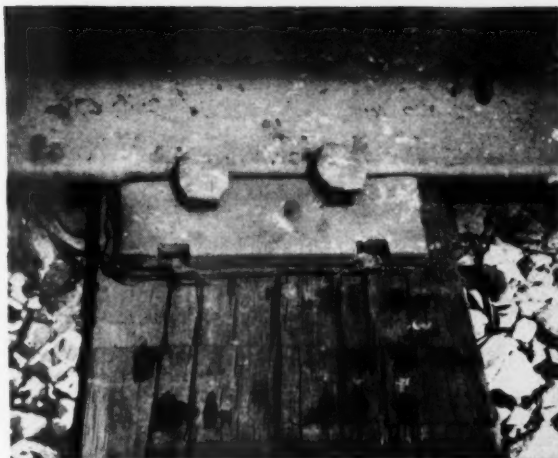
9 YEARS OF TIE PROTECTION

by **BIRD**
SELF-SEALING
TIE PADS
UNDER SMALL
TIE PLATES

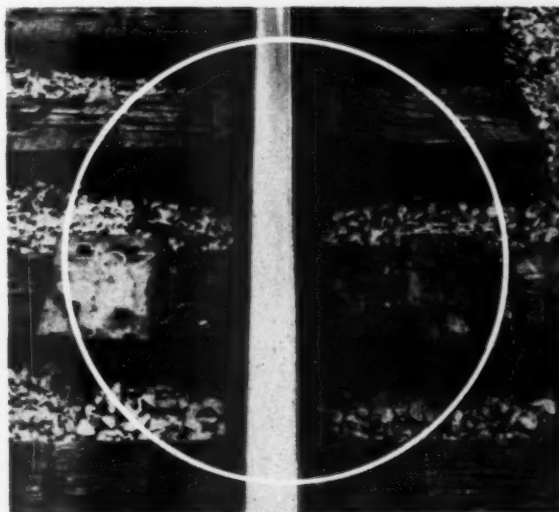
Smaller tie plates, used with Bird Self-Sealing Tie Pads, carry heavy tonnage — and afford better protection than larger tie plates without pads. Here's a 9-year record of performance on the Louisville and Nashville Railroad:

- For test purposes, tie plates were "bob-tailed" from 7¼" x 13" to 7¼" x 11".
- Bird Self-Sealing Tie Pads were installed in 1949.
- During past 9 years, traffic has averaged 17,500,000 gross tons annually.

Illustrations show the permanent and effective seal with the tie and the resulting protection of underplate and spike-hole wood. For interesting booklet, write to Bird Tie Pads, East Walpole, Massachusetts, Department HTS-3



Bird Self-Sealing Tie Pad is securely sealed to the tie after 9 years of service. There has been absolutely no contact between the tie and the plate since the pad was installed.



These are the results you can always expect with Bird Self-Sealing Tie Pads. Because of its tenacious seal, the pad had to be peeled from the tie. Note that the underplate and spike-hole wood is as sound today as when Bird Self-Sealing Tie Pads were originally installed. Moisture and abrasive materials could not penetrate the seal.

Bird Self-Sealing Tie Pads are recommended for:

Buy the Best...



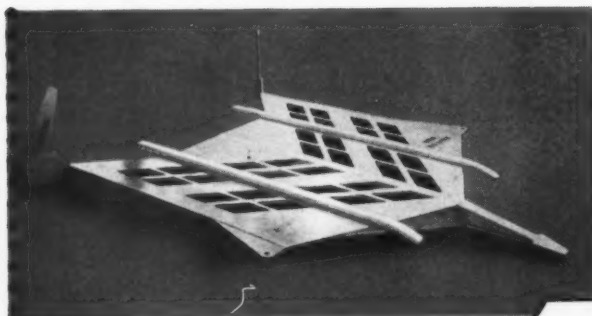
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Proven on the job by all these modern railroads . . . the Mannix Sled/Plow method can save money for you! Recent *Railway Track and Structures* articles give further proof of its cost-cutting efficiency on track maintenance and rehabilitation programs. Write for full details of the patented Mannix Sled and Plow . . . and the special rental plan available.



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RACINE® portable rail drill

WITH AUTOMATIC POWER FEED

Here is RACINE'S new Portable RAIL DRILL — completely new simplified design. A precision machine built for rugged in-track service. Once this machine is set up for specific rail size, it will drill hole after hole without further adjustment. Through an exclusive RACINE compensating pressure arrangement, feed of drill varies automatically, depending on sharpness of bit and hardness of rail.

★ **EASILY PORTABLE**

Simple quick-acting cam actuated clamp holds machine in position and allows rapid removal of machine from track.

★ **EASY TO HANDLE**

Carrier guard protects mechanism and provides a convenient carrying handle for lifting machine. Weighs only 165 pounds.

★ **EASY TO OPERATE**

Clamping device automatically aligns machine. Drill is always properly positioned and securely held in place. Machine is leveled by two quick-acting ground contacts and spirit level.

★ **POWERFUL FEED**

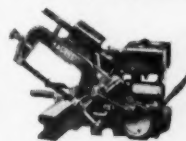
Powered by easy-starting 2¾ H.P. four-cycle gasoline engine. Drives

drill chuck at a 30 to 1 reduction providing more than adequate power.

★ **PRECISE, EFFICIENT**

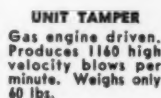
Holes can be drilled cleanly and accurately through any rail web in less than two minutes. Quick acting drill holder provides easy drill changing. Drill holder is designed to utilize full length of drill shank.

OTHER RACINE PORTABLE RAIL TOOLS



RAIL SAW

Portable rail cropping machine—gas engine driven. Saves time—reduces rail failures.



UNIT TAMPER

Gas engine driven. Produces 1160 high velocity blows per minute. Weighs only 60 lbs.



HYDRA QUAD MULTIPLE TAMPER

Four tampers operated by one man. Hydraulically powered by 15 H.P. gas engine. Easy removal from track.



Write today for complete descriptive literature and prices on any of the above Racine Portable Rail Machines.

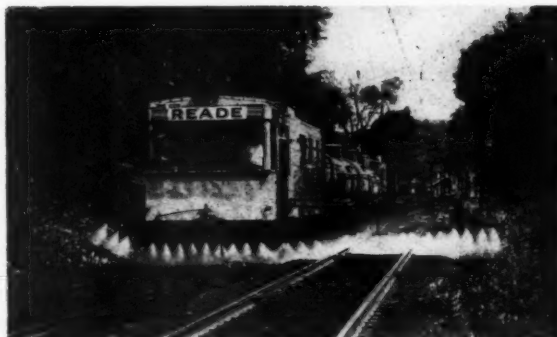
RACINE HYDRAULICS & MACHINERY, INC.

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CAN A WEED AND BRUSH CONTROL PROGRAM BE TAILOR-MADE ON A REDUCED BUDGET?

If you treated one thousand miles of right-of-way in 1957; at a total cost of \$75,000 — and if only \$35,000 is available for the same work for 1958 — you face a very serious problem. You may, in fact, lose an investment of several hundreds of thousands of dollars.



How then can you preserve this investment and keep unwanted growth from running wild?

We have an answer for this problem. It has already had enthusiastic acceptance by several railroads facing these conditions.

May we pass this suggestion on to you?



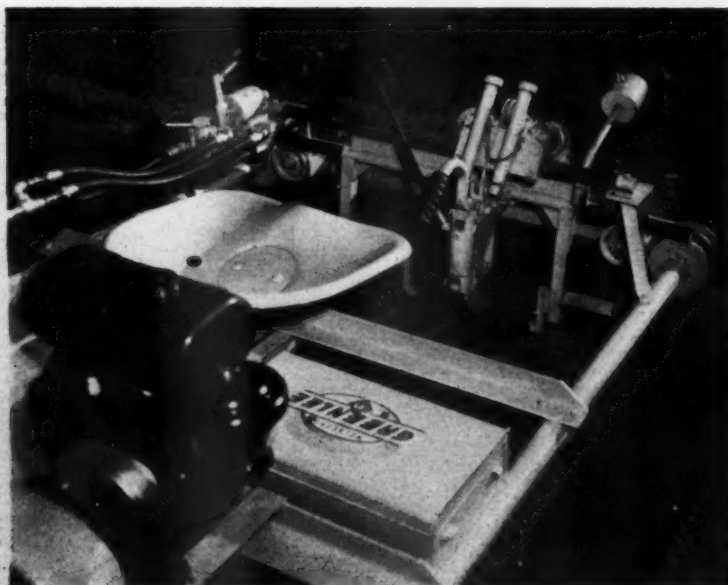
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Jersey City 2, N.J.

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a machine that will not only apply
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Or for further information write:

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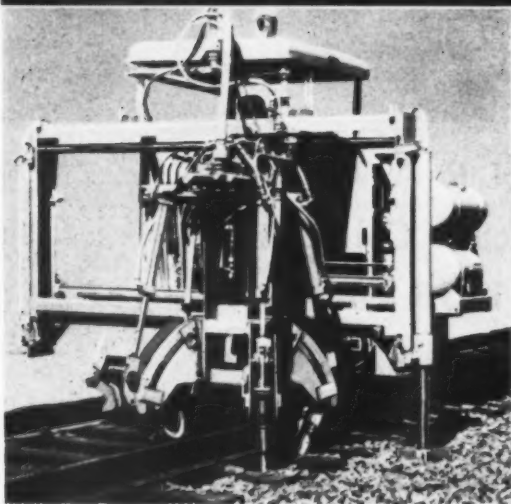
332 South Michigan Avenue
Chicago 4, Illinois

3712 Woolworth Building
New York 7, New York

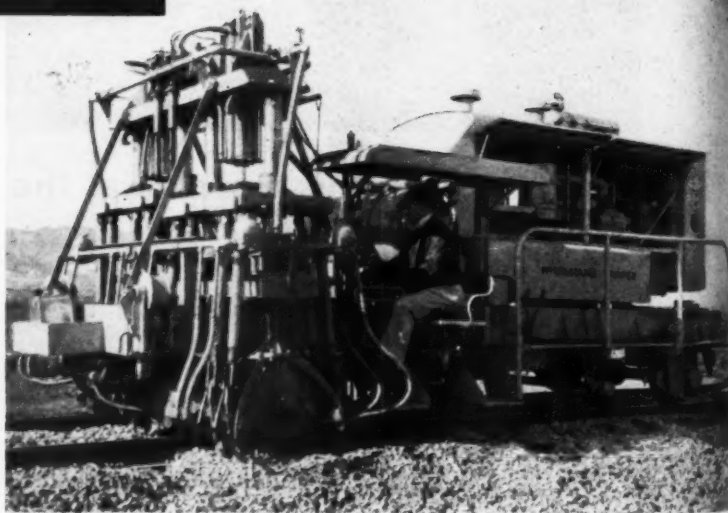
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These Jobs **are Done Best** *by* **RMc** **MACHINES**

*** TIE TAMPING**

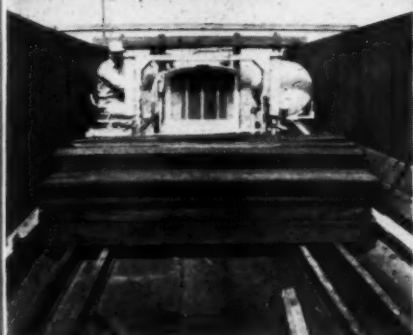


McWILLIAMS SPOT TAMPER
Provides big-tamper ballast compaction for smoothing, spot surfacing and yard and terminal maintenance.



McWILLIAMS PRODUCTION TAMPER
Will finish tamp any raise up to 6" at speeds up to 720' per hour.

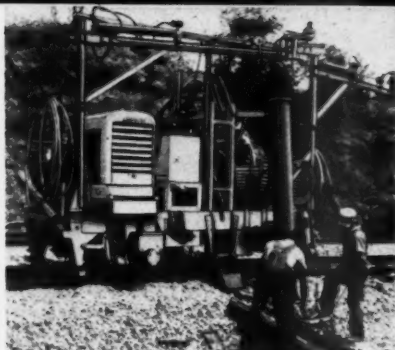
* TIE UNLOADING



R.M.C. TIE UNLOADER

Unloads ties from modified cars, placing them on the berm in correct position for tie renewal.

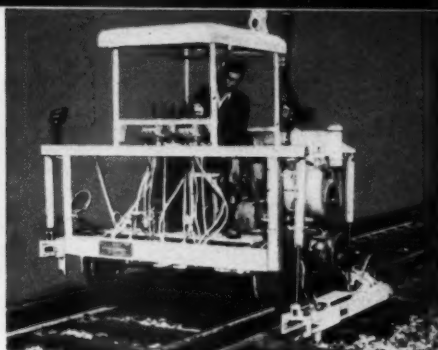
* TIE REPLACING



R.M.C. TIEMASTER

Replaces ties at a rate of approximately one per minute with three men, with minimum track disturbance.

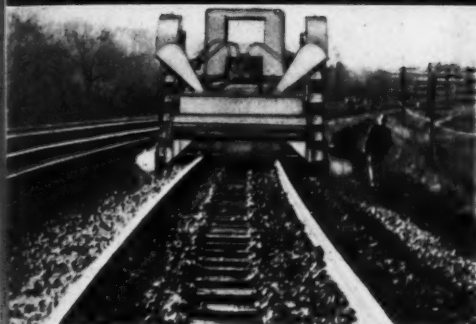
* TIE SPACING



R.M.C. TIE SPACER

Corrects poor tie spacing and slewed tie conditions by means of two hydraulic shifting devices.

* DISTRIBUTING BALLAST



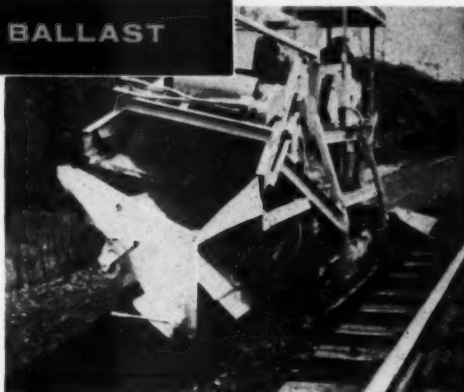
McWILLIAMS BALLAST DISTRIBUTOR

Places ballast in desired quantity in exactly the proper position for tamping, shaping shoulder and inner-track space.

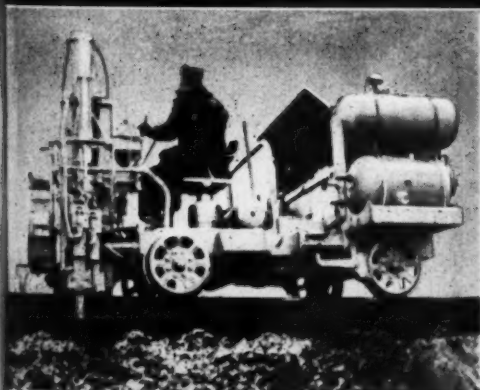
McWILLIAMS SUPER MOLE

Cleans or excavates shoulder ballast at speeds up to 2400' per hour.

* CLEANING BALLAST



* DRIVING SPIKES



R.M.C. SPIKEMASTER

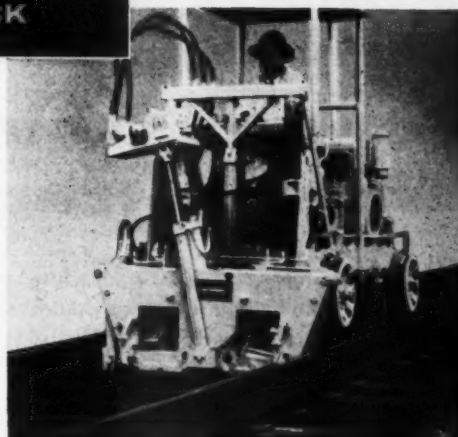
Nips up the tie and drives four spikes, one on each side of both rails. Speed: better than six ties per minute.

R.M.C. LINEMASTER

Lines over 6000 feet of track per day, using an operator and one man sighting. Wheel-mounted and crawler mounted models.



* LINING TRACK



See these machines
in Chicago

at the March Show

Booths: 92-96 and 112-116

Railway Maintenance Corporation

PITTSBURGH 30, PA.

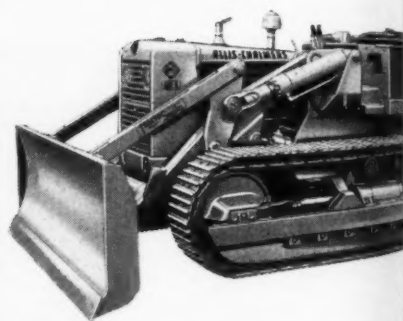
HD-6G Tractor Shovel

1½-cu yd bucket
72 net engine hp
Weight, 19,600 lb



Lift Fork

With adjustable or fixed tines



Tractor-Dozer

Straight type or angling type

ALLIS-CHALMERS TRACTOR SHOVEL WITH ATTACHMENTS...

A one-machine fleet for off-track work

The versatile Allis-Chalmers HD-6G tractor shovel with quick-change attachments provides a one-machine fleet for handling off-track construction, maintenance and material handling jobs. With standard 1½-cu yd bucket, the HD-6G excavates, loads, levels and stockpiles.

Equipped with quick-change attachments such as the lift fork, crane hook or dozer blade, the HD-6G lifts, stacks or loads solid and packaged materials, or handles a wide variety of dozing jobs. Attachments are quickly interchanged with the bucket by simply removing and replacing four pins.

Your Allis-Chalmers railroad representative will show you how versatile tractor shovels can reduce your equipment investment, save you time, and reduce costs. Get all the facts on the 1½-yd HD-6G or the three larger models ranging in capacity to 4 cu yd . . . see your Allis-Chalmers dealer, today.

Crane Hook

Lifts up to 6,700 lb



ALLIS-CHALMERS

Engineering in Action



Fantasies today, Facts tomorrow . . .

*A plea for creative thinking
by our guest editor:*

RAY MCBRIAN
President, AREA

Other AREA officers



B. R. Meyers
Senior vice-president



F. R. Woolford
Junior vice-president



Neal D. Howard
Executive secretary

It is my conviction that the railroad industry of today and tomorrow must have a greater incentive than it has had in the past for the development of new ideas and new concepts through organized practical and basic research. This is the challenge that confronts the railroad industry as a whole, as well as the nation, and has become more essential and perhaps vital for sheer survival.

The history of the American railroads is one of romance. It took men with imaginative foresight, courage and the spirit of adventure to build the railroads across this country. Always there were the skeptics and scoffers who stood on the sidelines and said it couldn't be done. This is now true when the subject of research and its benefits are mentioned. But never before in the history of the American railroads has the need for creative and imaginative thinking been so great.

It should be realized that research is needed not only in the laboratories and in the maintenance departments, but by all the departments and by all railroad personnel. The responsibility for carrying out such programs will fall to those whose training has best qualified them for the successful progressing of these programs. Thus, the American Railway Engineering Association, with its membership of trained engineers, must assume a responsibility in encouraging and developing such programs.

There is in store throughout our nation, as a result of such basic research projects as were undertaken by the Atomic Energy Commission and others, a vast wealth of information which can serve as a basis for more concentrated basic knowledge for the progressing of such projects as may be undertaken. The railroad industry

abounds with men of experience and know-how who will continue to direct the industry's progress to a much brighter future, but it is the young men in this industry with courage and vision who should be encouraged to help create new thinking. We best can serve our industry by encouraging their participation in the planning and thinking for the future.

The railroad engineer of today who can devise the quickest and best way to create new ideas for services to his industry and to the nation may tomorrow be transporting his railroad ideas and developments to the surface of another planet; thus helping to create a new world, building new empires. Who can say that some day the craters of the moon or the canals of Mars will not echo to the hum of the rails or tremble beneath a locomotive, whatever its power, whatever its name.

Does it sound fantastic? So did the idea of an Iron Horse to our forefathers. So sounded the Buck Rogers "funny" strips we read as kids. And but a few years ago "satellite" was a seldom-used word buried in the dictionary, and the atom was still the smallest particle of an element.

Now the railroads, as a transportation industry, should be concerned with the possible development of new transport systems which are superior to present means. To help insure such a program, all potential means for transportation should be considered and no candidates be overlooked. The ultimate aim must be the utilization of a transportation system to provide useful work for moving cargo and with a profit-making incentive.

Here is the field for the engineer to develop through ideas such possibilities and to finalize them with designs and factual engineering data.

What factors influence equipment buying today?

• Are the considerations for purchasing work equipment any different today than they were a decade ago? From railroad maintenance officers you will get both "yes" and "no" replies to this question. But even some of those who say "no" will proceed to recount developments indicating that important changes have taken place in their thinking.

Although it is equipment-minded, management expects savings and follows through to see that they are made.

There has been, for example, a basic change in the attitude of management toward equipment buying. It's much easier now to obtain approval of budgeted work-equipment items than it was years ago. Top officers are now frequently seen inspecting track gangs in the field to observe first-hand how the machines are used. They are not only convinced of the economies which can be effected through the use of machines, but they also have noted that track rides better and maintenance is more durable as the result of the use of machines. For a convincing demonstration they need only turn to their own records and compare the number of man-hours per million gross-ton miles employed for maintaining track today with those of a few years ago.

Furthermore, as one officer pointed out, there is no payroll tax on the machines for pension and unemployment and sickness insurance benefits. Nor does the railroad have to provide for holidays and vacations for machines. All such fringe benefits, he stated, are items which add to the cost of doing work by hand.

Management may be sold on the need for work equipment but, generally speaking, it's not just approv-

By **R. E. Dove**
Associate Editor

ing equipment budgets and then forgetting the matter. It's following up to see that the savings in forces are actually made. This means that careful studies must be made, not only for the machine under consideration but also for available competitive equipment. The advantages and disadvantages of each must be explored and weighed. Frequently, such explorations require trips to other railroads for observing machines working under field conditions. Sometimes, particularly when a machine is new on the market, these performance studies can be made closer to home by obtaining a pilot model from the manufacturer and testing it out on one's own railroad.

Unit costs can be reduced by equipment if it reduces payroll, does work faster, or gives more on-track time.

Maintenance officers say that the primary reason for buying equipment today is to reduce the unit cost of doing work. There are other reasons, of course, but low unit cost is the most compelling factor. Unit costs may be lowered by one machine or a battery of complementary machines. They may even be lowered by acquiring a minor part for a machine, such as a motor to make a unit self-propelling.

Many examples were advanced by these officers showing how costs are reduced. For instance, an operator and a production tamper will supplant an assistant foreman and 16 men with hand-held tampers. A dual-type spike driver, operated by one man, was bought to replace a compressor, a hoseman and two men with hand-held spike drivers.

Railroads have been using machines for M/W work for many years. But times have changed and it's pertinent to inquire what effect these changes have had on buying practices. Here, based on interviews with M/W officers, are answers to these questions:

A track-lining machine and a ballast-equalizing machine, stated one man, were outstanding in their ability to reduce the number of men required to perform work. "I'd hate to think of the condition of the railroads today if they had not found some means for reducing the payroll," said another officer.

Another way of reducing unit costs is using a machine which can perform the work faster. By accomplishing work more quickly, the time absorbed by all personnel in the operation is reduced and the cost can be spread over more units of work. "The thing to watch out for here, though, is that you better be sure you get a good job," pointed out one officer.

Speed will often influence the buying of a machine for reasons other than its effect on the economy of doing work. Speed in getting a machine in the clear of trains is of importance. Speed also becomes an important factor where track occupancy is limited. This is particularly true in CTC territory where the density of traffic affects the on-track time available to the track forces. A fast-working machine can accomplish more work in the time intervals between trains.

Being able to do a better job frequently is the deciding factor in the purchase of new machines.

Better work is another important justification for buying work equipment. An example cited by one officer is a power rail drill which is superior in its ability to center a bolt hole exactly, vertically and horizontally. Though no saving in man-hours can be attributed directly to the use of this machine, he said, it is anticipated that its use will reduce the number of bolt-hole breaks.

Improvements made to a machine,

- What do railroads expect to gain through mechanization?
- Has management changed its attitude toward M/W machines?
- What factors are most important when selecting new equipment?
- What effect do labor agreements have on equipment buying?
- How is depreciation figured, also interest, other cost factors?
- How are computations made when estimating savings from machines?
- What return on investment is needed to justify their purchase?

enabling it to do a better job, frequently are deciding factors in the purchase of newer models, one officer pointed out. He referred to a tamping machine which tamped one side of two adjacent ties simultaneously. A newer model was developed which tamped both sides of one tie, doing a better job. The older models were assigned for use on branch lines and new ones purchased for main-track use.

Another consideration which influences buying policy today are the agreements some roads have made with their operating labor unions. These may stipulate that a pilot conductor or an engineer, or both, must accompany the work-equipment unit. A few roads have signed agreements which even require an entire train crew to accompany a machine.

These unfortunate agreements virtually hamstring some roads insofar as the use of certain machines is concerned. No production is gained by having these men on hand and their very presence has a demoralizing effect on the trackmen. "In addition," one officer stated, "they have a tendency to want to allow too much time for getting our outfit in the clear, further cutting down on on-track time." But, because of these agreements, their wages must be paid and charged to the work being done. The result is higher unit costs, some so high that they render the use of a machine uneconomical.

Reputation of manufacturer in producing reliable units and furnishing repair parts is big factor.

The equipment-buying policy of a railroad also is influenced by the reputation of a manufacturer. Maintenance officers know, or soon learn, which suppliers produce the machines which stand up under the

abuse received through usage. There is nothing more frustrating, they say, than to have a machine break down repeatedly. It hampers the production of the entire gang. For this reason, some roads insure continuous operation by providing spare machines as stand-by units. Yet, desiring reliable performance, the green light for an order goes to the manufacturer known to supply reliable equipment.

Most maintenance officers agreed that occasional mechanical failures must be expected from any machine. That is why they hire mechanics to service and make running repairs both in the field and in the shop. What they do expect is to be able to get repair parts within a reasonable time so the machine can be returned to service promptly. A manufacturer's reputation for supplying repair parts without delay is an important factor in selecting a unit.

The reputation of a supplier's representative becomes an important consideration when a machine of a brand new concept is marketed. The statements made by a representative known for exaggeration are certain to be discounted.

Depreciation, interest, maintenance and operating costs are included in most calculations of savings.

What formula is used to arrive at the savings a machine will produce? There doesn't appear to be any generally accepted formula. Each railroad seems to have developed its own practices independently, and every machine is studied on its own merits. However, certain items appear in most calculations. These are depreciation, interest on the investment, cost of replacing worn parts and making repairs, and the cost of operation.

Depreciation is the amount deducted from capital account and charged to operating expenses each year during the expected life of the machine. It's a means of amortizing the investment. Hence, to determine the annual depreciation, it is necessary to know the expected service life of a machine.

Most maintenance officers agree that railroads will operate their machines much longer than a contractor. Perhaps too long, they say. A contractor usually will write off the cost of his machine in from three to five years. Railroads will get double that life. But, they point out, railroads not only replace broken and worn parts, but they also add improvements, as these are developed, which upgrade the machines. As a result, the improved performance pushes back the date of obsolescence.

A good example of this involves a machine for producing continuous welded rail. The railroad plans to replace the grinding portion of the outfit with improved equipment. Also, a foreign-made generator will be replaced by an American-made unit. "Since such replacements will extend the life of the entire outfit," said the officer, "I feel that we can reasonably expect a service life of 15 years from it."

The costs of making improvements should be appraised carefully before such work is done, say maintenance men. The cost of tearing out the old parts is a total loss and contributes nothing to the machine. This cost alone may be such as to render the improvement impracticable.

A life expectancy of 10 years is used for equipment in most studies. However, some roads use a shorter life expectancy for certain units.

On the other hand, a life expectancy of 15, 20 or 25 years will be used for some other units. These will include locomotive cranes, spreader-ditchers and bridge derricks. Such machines are worked by machine operators who are skilled in the care and operation of the equipment.

Some roads have tables showing the life expectancy of the machines, which have been used by the road for many years. These tables are based on the performance of similar units in the past. On others the road's accounting department advises the depreciation percentage to be used.

This percentage varies by roads but runs between 4.8 and 6.1. Still other roads use the life expectancy tables shown in the General Managers Agreement.

For an entirely new machine, an estimate is made based on other machines in the same category. For example, a new type of spot tamper will be assumed to have the same service life as other tamping machines. The life expectancy can be closely estimated by referring to the records of existing machines in similar service.

After having established the life expectancy of a machine, the original cost of the unit is divided by that number of years. This fixes the amount of annual depreciation.

Although 5 per cent sometimes is used, interest generally is set at 6 per cent per annum. It is to be noted that

the annual interest charge is figured on the original cost of the machine on a straight-line basis for its expected life. In other words, in figuring interest no allowance is made for depreciated value.

The allowance made in the computation of savings for overhaul, repairs and maintenance varies. Some roads try to estimate the various items. Others make estimates showing that this work costs from 3 to 15 per cent of the original cost. The majority, however, allow 10 per cent for the annual cost of this work. This allowance includes the wages of both field and shop mechanics.

The cost of operation of a machine includes hydraulic fluid, fuel, lubricating oil and the wages of the operator and any other laborers required for its use. The first three may be estimated close enough with the

help of the manufacturer. Labor costs are usually estimated on the basis of a season's work.

There is some disparity among roads as to what constitutes the annual wages of a trackman when computing savings. Some roads use a figure of \$4,000 per year per man saved. Others say this is not enough as it does not include supervision, the differential for machine operators, mechanics and overtime. They say that a figure of about \$4,500 is closer to the actual remuneration.

The cost of housing men in camp cars and trailers is usually ignored in computations of one field force against another, unless the estimator is endeavoring to justify the purchase of one method of housing as opposed to another.

Other items generally ignored are the payroll taxes for pensions and unemployment. This stems from the fact that these taxes are not charged directly to the maintenance-of-way accounts. Maintenance officers agree, however, that the present tax of 6¼ per cent for retirement and 2½ per cent for unemployment can be an important factor when payrolls are increased or reduced. A few stated that they plan to allow for this item in making future estimates.

Having established the allowances to be made for depreciation, interest on the investment, and the cost of repairs and other items, our estimator is in position to figure out the annual savings his new machines will effect. As shown in the example, he simply adds his annual labor and equipment costs, deducts the sum for the proposed method from the equivalent total for the existing method, and arrives at his annual net savings. Dividing this figure by the cost of the new equipment will show the annual percentage of return on the investment in equipment.

Whether this percentage of return is satisfactory depends upon the railroad. Most aim to have the equipment investment pay off in one year's time. Those roads which are now highly mechanized, however, admit that they may have to lower their sights because it's now getting to the point where they're comparing one mechanized method with another. Some of them feel that eventually they will be satisfied if the investment pays off in five years.

Estimating savings — A typical example

Work: Spot tamp one mile of track per day for 128 working days

Proposed method

LABOR

1 General foreman	\$ 2,925
1 Extra gang fore.	2,296
1 Assistant foreman	2,025
3 Machine oper.	6,781
12 Laborers	21,283

Subtotal 35,310

Retirement and unemployment taxes—8.75% 3,090

Annual labor cost \$38,400

EQUIPMENT

1 Tamping jack	21,000
1 Production tamper	43,350
1 Track liner	9,300
1 2-ton cargo truck	4,000

Cost of equipment \$77,650

Annual equip. costs:	
Depreciation—10%	7,765
Interest—6%	4,659
Maintenance and repairs—10%	7,765
Operating supplies—5%	3,883

Total \$24,072

Total labor and equip. \$62,472

Annual net Savings \$58,953

Return on investment in new equipment 75.9%

Present method

LABOR

1 Extra-gang fore.	\$ 2,296
3 Assistant fore.	6,075
1 Mechanic	2,260
1 Timekeeper	2,058
55 Laborers	97,546

Subtotal 110,235

Retirement and unemployment taxes—8.75% 9,646

Annual labor cost \$119,881

EQUIPMENT

1 Raising machine	3,385
2 Sets hand-held tampers	1,590

Cost of equipment \$ 4,975

Annual equipment costs:	
Depreciation—10%	498
Interest—6%	299
Maintenance and repairs—10%	498
Operating supplies—5%	249

Total \$ 1,544

\$121,425

PROGRAM . . . of the AREA convention

Being a complete schedule of events at the Sherman hotel

Committee meetings

Luncheons or meetings of individual committees are scheduled to be held during the convention as follows:

Monday

Highways—luncheon, 12:00 to 2:00, Jade room *
Economics of Railway Location and Operation—luncheon, 12:00 to 2:00, Emerald room
Waterways and Harbors—luncheon, 12:00 to 2:00, Life room
Clearances—meeting, 9:30 to 12:00, Time room

Tuesday

Ties—meeting, 2:00 to 5:00, Jade room
Track (subcommittee chairman only)—luncheon, 12:00 to 2:00, Time room
Engineering and Valuation Records—luncheon, 12:00 to 2:00, Parlor K
Water, Oil and Sanitation Services—meeting, 2:00, Gold room
Yards and Terminals—luncheon, 12:00 to 2:00, Emerald room
Iron and Steel Structures—meeting, 4:00, Ruby room
Contract Forms—luncheon, 12:00 to 2:00, Life room
Economics of Railway Labor—luncheon, 12:00 to 2:00, Room 107

Wednesday

Roadway and Ballast—meeting, 2:30, Ruby room
Buildings—meeting, 10:00 to 12:00, Ruby room
Wood Preservation—meeting, 9:00 to 12:00, room 107

Thursday

Continuous Welded Rail—meeting, 1:30, Ruby room

* Rooms for all committee luncheons and meetings, except that of Engineering and Valuation Records in Parlor K, are located on the first floor, directly above the mezzanine floor. Parlor K is on the mezzanine floor.

All this and . . .

. . . The RT&S coffee bar

For fruit juices, rolls and coffee meet with us in Parlor O on the mezzanine level every morning from 8:00 to 10:00—come and meet your friends.

RAILWAY TRACK and STRUCTURES

TUESDAY MORNING, MARCH 11, 9:30 to 12:00—Grand Ballroom

- Presidential address—Ray McBrian
- Reports of Executive Secretary Neal D. Howard and Treasurer A. B. Hillman
- Address—"Research lights the way," by Wm. T. Faricy, chairman of the board and chief executive officer, AAR
- Address—"Teamwork in research," by W. M. Keller, vice-president, research, AAR
- Address—"Highlights of Engineering Division research" (illustrated), by G. M. Magee, director of engineering research, AAR

TUESDAY AFTERNOON, 2:00 to 5:00—Grand Ballroom

Reports of Committees

Contract Forms

- Address—"Value of the knowledge of contracts to the engineer," by C. J. Henry, chief engineer, Pennsylvania

Engineering and Valuation Records; Yards and Terminals

- Panel Discussion—"Hump yards," by Wm. J. Hedley, chief engineer, Wabash, moderator; Martin Amoss, superintendent yards and terminals, New York Central; G. W. Miller, regional engineer, Canadian Pacific; and A. L. Essman, chief signal engineer—system, Burlington

Economics of Railway Location and Operation

- Address—"Engineering, maintenance and operating benefits to be derived from increased joint use of railway facilities," by John W. Barriger, president, Pittsburgh & Lake Erie

Waterways and Harbors; Highways

- Address—"Computer determination of risk factors in different types of grade crossing protection" (illustrated), by G. M. Magee, director of engineering research, AAR.

WEDNESDAY MORNING, 9:00 to 12:00 — George B. Shaw Room

Reports of Committees

Water, Oil and Sanitation Services

- Address—"Radioactivity and railroads," by R. O. Bardwell, nuclear engineer, Denver & Rio Grande Western

Cooperative Relations with Universities

- Address—"One way in which Committee 24 is interesting students in railroading" (illustrated), by W. H. Huffman, assistant chief engineer, Chicago & North Western

Wood Bridges and Trestles; Impact and Bridge Stresses

Masonry

- Address by R. F. Blanks, chairman, Reinforced Concrete Research Council

Iron and Steel Structures

- Address—"Model railway truss bridge" (illustrated), by L. T. Wyly, research professor of civil engineering, Northwestern Technological Institute

Clearances

WEDNESDAY NOON, 12:00—Grand Ballroom

Annual Luncheon

Announcement of results of election of officers

- Address by G. B. Aydelott, president, Denver & Rio Grande Western, on "Maintenance—or deferred maintenance."

WEDNESDAY AFTERNOON, 2:30 to 5:05 — George B. Shaw Room

Reports of Committees

Waterproofing; Wood Preservation

Buildings

- Address—"Legislative situation as it affects engineering and maintenance of way departments," by R. G. May, vice-president, Operations and Maintenance Department, AAR

Maintenance of Way Work Equipment; Economics of Railway Labor

- Address—"Observations of track maintenance in France and Germany" (illustrated), by T. F. Burris, chief engineer, system, Chesapeake & Ohio
- Address—"Methods and cost control in the maintenance of way department," by M. C. Bitner, manager methods and cost control, system, Pennsylvania

Ties

THURSDAY MORNING, 9:00 to 12:20—Grand Ballroom

Reports of Committees

Special Committee on Continuous Welded Rail

- Address—"Observation of continuous welded rail in France" (illustrated), by T. F. Burris, chief engineer, system, Chesapeake & Ohio

Rail

- Address—"Plastic flow in rail heads" (illustrated), by C. J. Code, assistant chief engineer—tests, M/W, Pennsylvania
- Address—"Rail production and rail testing in Germany" (illustrated), by Kurt Kanno, metallurgical engineer, AAR
- Address—"Progress in rail research" (illustrated), by G. M. Magee, director of engineering research, AAR

Track; Roadway and Ballast

- Address—"Ventilation system for Cascade tunnel on Great Northern" (illustrated), by G. V. Guerin, chief engineer, Great Northern

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. . . Yourself plenty of time to see this exhibit. NRAA president W. H. Tudor (International Harvester Co.) estimates that, to see all of the exhibits, will take a minimum of 12 hours. Actually, he says, a really thorough job of inspecting the products on display will take a great deal more time than this. That's why the exhibit will be open on Monday, March 10—to allow you a full day to spend at the Coliseum before the convention starts.

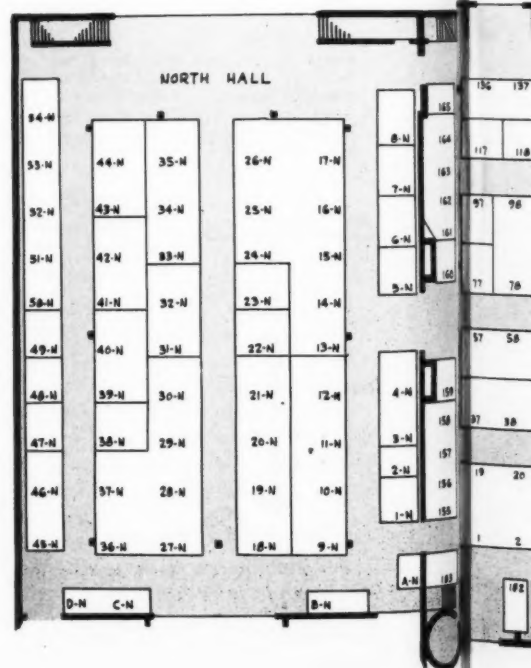
There are two ways you can inspect the exhibit. One is to wander at random. The other is to use the floor plan and list to "spot" the booths you want most to see.



W. H. Tudor
President
National Railway Appliances Assn.

Achuff Railway Supply Co. . . . 159
Acorn Paint & Chemical Co. 24-S
Adam Company 47-N
Aeroquip Corporation 41-N, 42-N
Ajax-Consolidated Company . . 1-S
Aldon Company, The 29-S
Allis-Chalmers Manufacturing Co. 6, 7, 24, 25
Alma Trailer Co. AN
American Brake Shoe Co., Railroad Products Division . . 37-41
American Chemical Paint Co. 27-S
American Hoist & Derrick Co. 176
Amer. RR Curvelining Corp. 176-A
Armco Drainage & Metal Products, Inc. 26, 27
Austin-Western Co. . . . 4, 5, 22, 23
Baldwin-Lima-Hamilton Corp. . 84
Bernuth, Lembecke Co., Inc. . . 48
Binks Manufacturing Co. . . . 8-N
Bird & Son, Inc. 123-125
Bogle, R. H. Company, The . . 5-N
Briggs & Stratton Corp. . . . 3-S
Caterpillar Tractor Co. 78-81, 98-101
Chicago Pneumatic Tool Co. . . 69
Chipman Chemical Co. . . . 42, 43
Coles Cranes, Inc. 22-N, 23-N
Continental Motors Corp. 168, 169
Cox, W. T. Co. 182
Cullen-Friedstedt Co. . . . 65, 66
Daubert Chemical Co. 7-N
Dearborn Chemical Co. . . . 44, 45
Dow Chemical Co. 77
Duff-Norton Co. 97
DuPont, E. I. deNemours & Co. 172
Eaton Mfg. Company, Reliance Division 82, 83
Enterprise Ry. Equip. Co. . . . 6-N
Fabreeka Products Co. 45-N, 46-N
Fairmont Railway Motors, Inc. 127-135, 146, 154
Foundation Equip. Corp. . . . 175
Gary Slag Corporation . . . 3-N, 4-N
General Chemical Division, Allied Chemical & Dye Corp. . . . 178
Goodyear Tire & Rubber Co. . . 177
Gray Company, Inc. . . . 21-S, 22-S
Hayes, Brice Company, The . . 2-S
Hayes Track Appliance 126
Imperial Oil & Grease Co. C-N, D-N
Industrial Brownhoist Corp. . . 13
Ingersoll-Rand Company . . . 28-30
Int'l Harvester Co. . . . 52-56, 72-76
Jackson Vibrators, Inc. 119-122, 138-141

Jordan, O. F. Company 62
Kalamazoo Mfg. Co. 102-105
Kasle Steel Corporation 143
Kershaw Manufacturing Company Inc. 13-N-17-N, 24-N-26-N
Koehring Division of Koehring Co. 106-110
Kohler Company 5-S
Le Roi Division, Westinghouse Air Brake Company 180, 181
LeTourneau-Westinghouse Company 33-N-35-N
LFM Manufacturing Company, Inc., The 25-S
Linde Company, Division of Union Carbide Corp. 88, 89
Maintenance Equip. Co. . . . 85-87
Massey Concrete Products Company, Division of American-Marietta Co. 160
Matisa Equipment Corporation, 27-N to 30-N, 36-N, 37-N
McKiernan-Terry Corp. . . . 49-N
Mid-West Forging & Mfg. Co. 183
Minnesota Mining & Mfg. Co. 14, 15
Morrison Railway Supply Corp 18-N, 21-N
Motorola, Communications & Electronics, Inc. 1-N, 2-N



RAILWAY TRACK and STRUCTURES

materials of 113 supply companies

maintenance costs through efficiency and durability

National Aluminate Corp. 161-164
 National Cylinder Gas Co. . . 23-S
 National Lock Washer Co. . . 70, 71
 National Torch Tip Company 142
 Nolan Company, The . . . 166, 167
 Nordberg Mfg. Co. . . 7-S to 20-S
 Northwest Motor Co. . . 43-N, 44-N
 Onan, D. W. & Sons, Inc. . . . 10
 Orton Crane & Shovel Co. . . 26-S
 P. & M. Company, The . . . 90, 91
 Pettibone Mulliken Corp. . . 31-36
 Plasser Ry. Machinery 39-N, 40-N
 Pullman-Standard Car Mfg. Co.
 . . . 1-3, 19-21
 Q and C Co., The 111
 Racine Hydraulics & Machinery
 Inc. 155-158
 Rail Joint Company 60, 61
 Railroad Rubber Products, Inc 6-S
 Rails Company 56-A
 Railway Equipment & Pub. Co. 118
 Railway Maintenance Corp.
 . . . 92 to 96-A, 112 to 116-A
 Railway Track & Structures—Rail-
 way Age—Railway Purchases &
 Stores 76-A
 Ry. Track-work Co. . . 9-N to 12-N
 Reade Manufacturing Co. Inc. 8, 9
 Remington Arms Co. . . . 11, 12

There are many new products on display

It has been three years since the last exhibit was held during the AREA convention. And eighteen months have gone by since the last exhibit was held in conjunction with a meeting of railway maintenance-of-way officers. Meanwhile, the manufacturers have been busy improving their products and designing new ones.

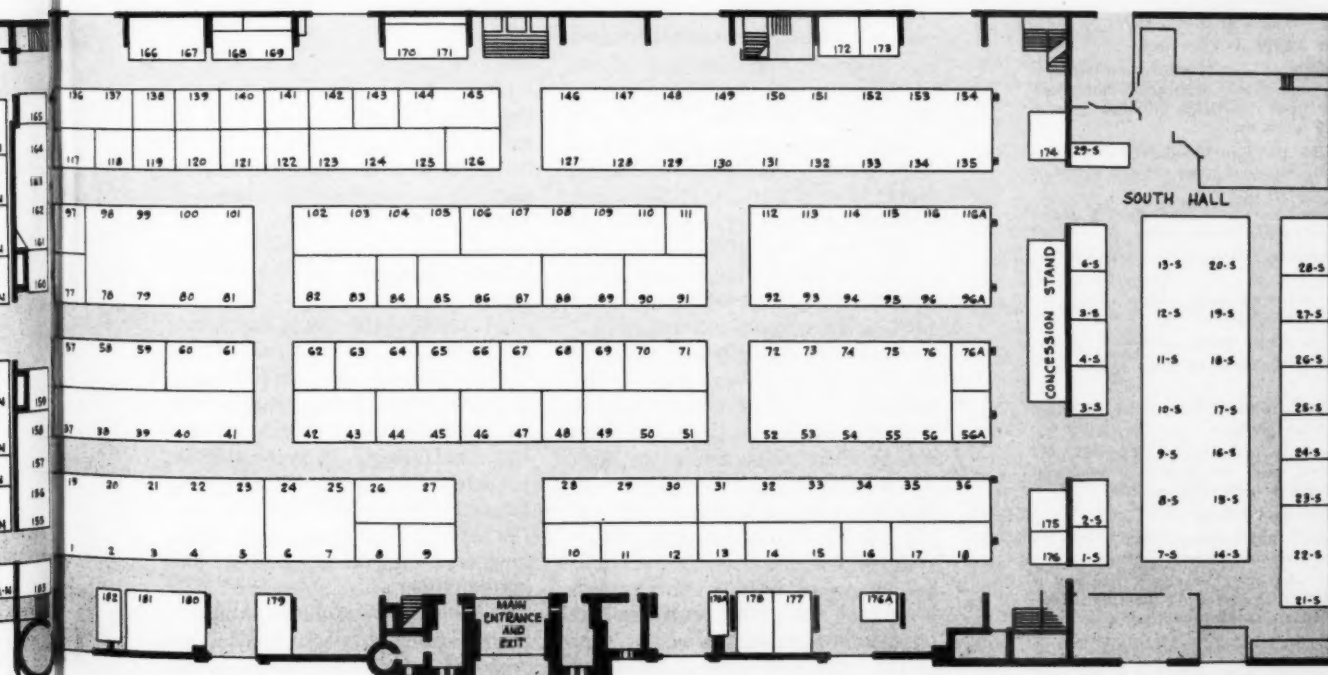
With M/W men clamoring for machines that will cut even deeper into costs than available units, the equipment manufacturers have been particularly active in de-

veloping new and better equipment. Some of them have been working on pilot and production models practically right up to the eve of the exhibit in an effort to have them ready for unveiling.

The cost-conscious M/W man will, therefore, be richly rewarded by a careful examination of the current exhibition. For a quick preview of many of the new and improved machines on display, turn to the Products section of this issue, which begins on page 68.

Rust-Oleum Corporation 16
 Schramm, Inc. 179
 Silent Hoist & Crane Co. 31-N, 32-N
 Sperry Rail Service 67, 68
 Spray Products Corporation . . 165
 Tamper, Limited . . 50-N to 54-N
 Teleweld, Inc. 117
 Templeton, Kenly & Co. . . 46, 47
 Timber Engineering Company 173
 True Temper Corporation . . 49-51
 Unit Rail Anchor Company,
 Inc. 144, 145
 U. S. Borax & Chemical Corp.
 170, 171

United States Envelope Company,
 Paper Cup Division . . . 178-A
 Warner & Swasey Company 57-59
 Wasco Supply Company . . . 38-N
 Watson Publications 174
 Wellman Engineering Co.,
 The 48-N
 Western Railroad Supply Co. 28-S
 White Manufacturing Co. 136, 137
 Wisconsin Motor Corp. . . 17, 18
 Woodings-Verona Tool
 Works 63-64
 Woolery Machine Company . . 4-S
 Zone Company, The B-N





SPIKES are pulled by Fairmont machine. Power wrench then removes joint bolts.

This is the
sequence of operations



OLD RAILS are lifted out individually by Burro crane. Men follow closely behind to throw out tie plates and other material. Note long rail on ballast shoulder.

Here's the complete organization

Supervision — Assistant roadmaster; 1 foreman; 1 assistant foreman.

Pulling spikes — 2 Fairmont spike pullers; 1 man on each machine; 1 laborer pulling spikes left by machine.

Running nuts off joint bolts — 1 Race bolting machine; 1 operator; 1 laborer removing bolts, knocking off joint bars, removing anchors.

Setting out old rail — 1 Burro crane; 1 operator; 1 laborer handling tongs.

Throwing out tie plates, other material — 2 laborers.

Placing tie plugs — 2 laborers setting plugs; 1 driving.

Adzing ties; applying preservatives — 1 Kershaw Crib-Adze; 1 operator.

Sweeping ties — 1 laborer with broom.

Placing new tie plates — 2 laborers.

Pre-gaging tie plates — 1 Nordberg pre-gager; 1 laborer pushing pre-gager; 1 laborer positioning tie plates. (One of these men drops off maple gaging pegs, 2 for every fourth tie.)

Gaging tie plates — 1 Dun-Rite gager boring holes in every fourth tie for wood gage pegs; 1 operator; 1 laborer.

Applying tie plates — 2 laborers placing plates and wood pegs; 1 laborer driving pegs.

Shifting new rail onto tie plates — 1 Speed Swing; 1 operator; 1 laborer.

Placing joints between long rails — Race bolt tightener; 1 operator; 1 laborer.

Straightening tie plates under rails — 1 laborer.

Checking gage — 1 Nordberg gage indicator; 3 laborers.

Setting spikes — 3 Fairmont spike-setter carriages; 1 laborer with each carriage.

Driving spikes — 3 track-mounted Ingersoll-Rand IR-36 compressors, each for driving a pneumatic spike driver; 2 laborers with each machine.

Applying anchors — 4 laborers.

Miscellaneous — 1 traveling mechanic; 2 laborers flagging; 1 laborer on motor car; 1 water boy.

SUMMARY — 1 foreman; 1 assistant foreman, 1 mechanic; 6 machine operators; 42 laborers. Total: 51 men, not including assistant roadmaster.

Rails are long but time fo

If you're going to get much out-of-face work done on a busy, single track line you've got to have a fast-moving organization. This is particularly important if you are laying continuous welded rail. A highly mechanized gang laying such rail on the Southern Pacific's Sunset Route is geared up to take advantage of short intervals between trains.

● The date: December 4, 1957

The place: A few miles west of New Orleans on the famed Sunset Route of the Southern Pacific Lines to the West Coast.

The time: About 8:30 am.

The occasion: Inspection of the road's organization and equipment for laying continuous welded rail.

An RT&S editor was on hand to see how the work was done. On the drive out from New Orleans he had been briefed by C. N. Billings, assistant chief engineer of the SP's Lines in Texas and Louisiana. "This is a single-track railroad," he explained, "and we'll have eight or nine trains to contend with. We hope to get some rail laid this morning, but it may be afternoon before we get enough time between trains."

The later was a prophetic state-

ment. Actually it was after 2:00 pm before the gang got the use of the track. Even then it had only slightly more than two hours, and that's all the time it got that day.

Were laying 7 1/2 miles

Meanwhile, there was an opportunity to learn something about the overall operation. In addition to Mr. Billings, others on hand to supervise the work and to answer questions were W. H. Bush, roadmaster, R. A. Singleton, assistant roadmaster, and James Howell, foreman of the gang.

The immediate operation in which they were engaged involved the laying of about 7 1/2 miles of 136-lb CF&I rail welded into continuous lengths (they're called "stalks" on this road) by the Linde oxyacetylene



ADZING is done by Crib-Adze, a one-man operated machine that cribs ballast between ties, adzes and brushes tie-plate surfaces and sprays preservative.



NEW TIE PLATES, placed by two men, are brought to approximate position by pushing them against pre-gager.

ne for laying them is short

pressure-welding process. The welding was done at a plant at Lafayette, La., which was also producing welded rail for laying at other locations. Lengths of the stalks range from 350 ft to 1,400 ft, but on the job that was being inspected they were mostly 1,131 ft long.

The SP has other installations of continuous rail. The longest is 23 miles and is located between Morgan City, La., and Schriever. Altogether about 82 miles have been installed at various places along the SP System.

How rails are loaded, unloaded

At the welding plant the long rails are loaded in two tiers on strings of flat cars. Cross timbers are placed at intervals on the lower rails to support the top tier and to serve as skids when unloading the rails in the upper tier. When in transit the top rails are held in position by other timber cross members bolted to the floor of the car.

The rear-end unloading method is used, utilizing a system of threaders and an outrigger to deposit the long rails on the ballast shoulder. Two lengths are unloaded simultaneously. In the laying operation the rails are shifted directly into final position on

the tie plates. The long lengths are joined in track by conventional bolted joints. Tie pads are placed under the tie plates at four ties at the joints—the two joint ties and the shoulder ties. When laying the rails the newly adzed tie surfaces are sprayed with a penta solution and the tie plugs are penta treated.

In its early experience with welded rail the railroad found that there was a tendency to over grind the welds at the production line. To correct this condition it has established the practice of leaving them slightly high and then grinding them down to surface 30 to 60 days after the rail is laid.

How they are laid

The organization that has been created on the SP lines in Texas and Louisiana for laying the long rails is designed to do the job with maximum speed and economy consistent with good workmanship. Details are given in the organization table and the major items of equipment are shown in the photographs.

The operation, in brief, consists of freeing the old rails by pulling the spikes and removing the joint bars, setting the old rails out individually with a Burro crane, removing the tie



GAGING is done by Dun-Rite gager which bores holes for every fourth tie plate. Two men then place plates and drive pegs.

plates, applying tie plugs, adzing and spraying the ties, applying the new tie plates and gaging every fourth plate with the help of a Dun-Rite gaging machine, lifting the welded rail directly onto the tie plates with a Speed Swing, and spiking.

One-man adzing

The equipment, for the most part, is of types commonly used for such work. A relatively new machine, however, is the Crib-Adze used for adzing the tie-plate surfaces. This machine, operated by one man, cribs the ballast from between the ties, adzes the ties, brushes the adzed surfaces and sprays them with preservative. It may operate in either direction and has a built-in jack so that

it may be raised and turned to adze the ties on the other side.

The machine has three adzing heads and each head has 6 bits. The bits each have seven cutting edges and may be adjusted when necessary to present a new cutting edge. Changing the position of the bits on the three cutter heads may be done in a manner of minutes. On the SP job about five minutes were required to change the bits on two of the cutter heads. On this road three spare cutter heads are carried with the machine. It takes about 10 min to change out one of the heads.

Because the long rails are lifted from their position on the ballast

shoulder and placed directly on the tie plates there is an accumulation of ballast on their bases which must be removed. This ballast, furthermore, must come off before the rail is swung into position over the tie plates. This is accomplished by a wiping device that rides on the head of the rail at the end of a rod 14 ft long that extends back to the boom on the Speed Swing.

It has to work fast

Operating as it does in single-track territory where train movements are quite frequent, this gang must be geared up to the task of laying one

or more stalks of rail in the shortest possible time. Consequently, it has become highly proficient in getting underway when it has been given an adequate interval between trains. Experience has shown that a 1,100-ft stalk can be laid in about 1 hr 15 min from the time the gang starts to work after the passage of a train. Subsequent stalks can be laid at the rate of about 45 min for each one. The amount of rail actually laid per day varies widely depending on traffic conditions. The record so far is 6,000 ft in a single day.

On the day the gang was seen in operation it moved at a fast clip after it had gotten use of the track in the early afternoon. It then had the track for 2 hr 5 min from the time it stopped the equipment at the work site until it was in the clear for the next train. In this period the gang laid three 1,131-ft stalks.

This road is box anchoring every other tie in its installations of long rails, but is experimenting with several patterns of end anchorage. In most of its installations, for a distance of 5 rail lengths from the bolted joints it has placed 12 additional anchors against contraction. However, in the installation that was inspected this additional anchorage was placed for a distance of only $2\frac{1}{2}$ rail lengths from the joints. In still another test the end anchorage consists of 24 compression clips per rail for a distance of five rail lengths.

A standard anchorage pattern will be adopted this year after observing the results of the test installations during the hot and cold seasons.



SPEED SWING, using threader, picks up long rail and lays it on the new tie plates. Device at end of rod wipes ballast from base of rail.



CHECKING of gage is done with help of indicator which has a pointer that indicates variations in the gage.



SPIKES are set with spike-setter carriages and are driven by air hammers powered by track-mounted rotary compressors.



MACHINERY for cutting, dapping and surfacing timbers is at right in picture below. Members to be tapered are sent to saw-mill at left.



The problem was how to control the cost of preframing timbers for a large bridge-deck renewal job requiring nearly 1200 variations in fabrication. The answer was to build a . . .

. . . Modern timber framing plant

● Renewing ties and other deck timbers on the Huey P. Long bridge at New Orleans is more than just a big timber-renewal job. It's about as complicated as such jobs can get.

You can measure its size by the fact that 42,498 pieces are involved. Of this total, 34,304 members are bridge ties, with the remainder consisting of guard rails, filler blocks and the like.

You can measure its complexity by the fact that there are 1196 variations in fabrication involved in preframing and boring these timbers.

How to do this job most economically was a problem for the engineering officers of the New Orleans Public Belt Railroad which operates and maintains the bridge. Directly responsible for the planning and conduct of the work is Ed F. Garland bridge supervisor. E. L. Mire, assistant to general manager and chief engineer, is in general charge.

These are expensive ties

The work of renewing the ties and other timbers on the bridge got un-

derway about a year ago, and it's expected to take about 10 years to finish the job. In the beginning it looked as if each new tie would cost in the neighborhood of \$58 to \$60 in place. This is what it would cost if the preframing work were to be done by outside contractors.

But Mire and Garland had other ideas. They figured that the cost could be substantially reduced if the preframing work were to be done in a plant owned by the railroad. Trouble is, the road didn't have such a plant. So they did some more figuring and found that a preframing plant equipped with the most modern wood-working machinery could be built for about \$34,000, including the building itself. The new plant is now in operation and is turning out fully framed and bored timbers at an average cost of about \$42.00 per member in place on the bridge.

To have a better understanding of the work being done by the plant and of the overall nature of the problem we have to know more about the bridge itself. The Huey P. Long bridge is a combination highway and

double-track railroad structure. It crosses the Mississippi about two miles above the upper city limits of the City of New Orleans. It carries all traffic of the Southern Pacific, Texas & Pacific and Missouri Pacific moving between New Orleans and points west. U. S. Highway 90 is carried across the river on the highway deck of the bridge.

Why preframing is complicated

The total length of the bridge is about 23,000 ft. This includes a main span of about 3,500 ft, an east approach of approximately 8,700 ft and a west approach of 10,800 ft. The large number of variations in framing for the deck timbers is explained largely by the fact that the alignment of the bridge includes four curves. There are two 4-deg curves, one of 3 deg 24 min and one of 1 deg 45 min. The three sharper curves were originally designed for a superelevation of 1 3/4 in. and the lighter curve with a superelevation of 3/4 in. Because the speeds of trains operating over the bridge are now limited to 20 mph,

the superelevation of all the curves is being reduced. All superelevation for the curves and easements is produced by tapering the bridge timbers.

Average age 25 years

All of the timber for the bridge was originally fabricated in the years 1932 to 1934, so that its average age is about 25 years. Hence, the program now being undertaken to renew the entire deck. Because of the great number of pieces of timber involved, coupled with the intricate framing required and the high unit cost, it was decided to do the renewal work by a continuous spot replacement program. Up to February 1 a total of 3630 pieces has been changed out.

Only southern yellow pine lumber conforming to dense structural grade No. 65 is used. It is steam seasoned and treated with No. 1 creosote oil to a retention of 12 lb per cu ft. Treating is presently being done in outside treating plants after the timber has been framed. However, the railroad is now investigating the possibility of installing a treating plant of its own in conjunction with the new framing plant. If this can be justified by cost savings, a production-line method of fabrication and treatment will result. "In that case we'll be able to install timbers in the bridge within a week from the date they are received at the yard," said Mr. Garland.

Material is hard to get

Because of the high quality lumber specified for use on the bridge the railroad is having difficulty getting the material in the quantities needed. At the present time it has one crew at work making the renewals. This is a mechanized gang of seven men and is capable of putting in about 250 pieces a month. But until recently only 150 pieces per month were being obtained from suppliers. Steps have been taken, however, to broaden the sources of supply and it is expected that material will soon start flowing into the plant on a larger scale.

It is hoped eventually to obtain enough material to keep three renewal gangs working full time. Since the framing plant has an estimated capacity of about 100 pieces per day it can easily process enough material to keep three renewal gangs busy.

It's a production-line operation involving . . .



. . . Tapering . . .

Main machines are radial-arm sa

The framing plant is housed in a 36-ft by 100-ft Butler prefabricated building of rigid-frame construction and has a clear span between the side walls. It has a concrete floor and galvanized metal siding and roofing. Some of the roof panels consist of translucent plastic sheets.

The woodworking machinery installed in the shop includes:

- 1—Irvington radial-arm cut-off saw
- 2—DeWalt radial-arm saws for dapping and cutting grooves for the edges of web plates and for rivet heads
- 1—DeWalt radial-arm saw used primarily for surfacing
- 1—American all-steel circular saw-mill with a 54-in inserted tooth blade, used for cutting tapers

The radial-arm saws used for dapping are equipped with Schmidt-Chaffee 4-knife cutting heads for this purpose. "We use these in place of conventional dado heads because they're easier to sharpen," explained Mr. Garland. With these heads cuts having a maximum width of 4¼ in can be made. As many cuts as necessary are made to produce daps of the required width.

All the radial-arm saws are arranged along one side of the shop and are flanked by a conveyor consisting



CONSULTATION in shop. E. F. Garland, bridge supervisor, who is in charge of work, and Joseph R. Coates, assistant bridge supervisor.

of heavy ball-bearing rollers with extra-heavy shafts. The timbers being framed can thus be moved from machine to machine in production-line fashion. At the saw for doing surfacing work, which is located at the end of the production line, tapered members to be surfaced are



... Cutting ...



... Dapping ...

m saws and sawmill

placed on a length of channel iron with an adjustable feature at one end to allow for the taper.

The sawmill for tapering the pieces is located on the opposite side of the shop. Modifications were made in this machine to assure greater accuracy, with the result that it will make rough cuts to within $\frac{3}{8}$ in of the required dimension.

Two traveling hoists

Two Cleveland-Tramrail overhead hoists, which are used for handling the timbers anywhere in the shop, run the length of the building. These have manual travel but the hoists are motor driven and are push-button controlled. Safety power bars are used in place of open trolleys.

As the timbers come off the production line they are stacked on the floor and holes for hook bolts and lag screws are drilled. An electric Skil drill is used for this purpose. At this point S irons are driven in both ends of the ties, and metal identification tags are applied, which show the number of the member and the year of fabrication. The pieces are then ready for treatment.



... Surfacing ...



... And boring With handling by overhead hoists.

● Picture a gang of seven men and a foreman surfacing and lining well over 3000 ft of track per day under traffic. Impossible, you say. Not at all. That's the production objective of a gang now being perfected on the North Western. The secret, of course, lies in a high degree of mechanization. You might even say this gang approaches the ultimate in the use of labor-saving equipment.

For the complete story it is necessary to go back to October 27, 1957. On that date the North Western put into service a small experimental gang for doing out-of-face surfacing work. It was organized initially for tightening the ties and smoothing the surface on track which had been sledged, timbered and surfaced the preceding summer. It was also contemplated that the gang could be used for handling "skin raises" of 1 to 1½ in. The ultimate purpose was to evolve an organization that would serve as the prototype for similar gangs that could be set up on other main-line divisions.

Consist of original gang

The general idea was to have maximum machine-power with minimum man-power. As for machines, there were six in the original organization with a total value of about \$140,000. They were: a Nordberg Trak-Surfacer incorporating a Nordberg tamping power jack, two Jackson Track Maintainers, a Kershaw Ballast Regulator, a Kershaw Track Broom and a Nordberg Trak-liner. As for man-power, there were five machine operators, a foreman and an assistant foreman.

This works out to be five operators for six machines, but one operator worked two machines, the Ballast Regulator and the Track Broom alternately, as required. A lining scope was also assigned to the gang, which was operated by the assistant foreman in directing the work of the lining machine. Because the gang initially was working in territory where there was a full ballast section it was not necessary to assign men for throwing in ballast to the Trak-Surfacer or the production tampers.

Two Maintainers were assigned to the gang because the road had finished most of its program work and had them available at the time. Also it wanted to see how the gang would perform with two production tampers. It soon became evident that the full production capacity of the tampers was not being realized because they were crowding the Tamping Power Jack that forms a part of the Trak-Surfacer. The latter, incidentally, was tamping three ties per rail length. To bring the machines into mesh with each other the manufacturer of the jack developed a larger capacity hydraulic pump for the unit, thereby giving it increased production capacity.

The goal which the railroad had set for this gang was to complete the surfacing of about 4,000 ft of track per day under traffic. Daily reports show that the gang actually exceeded that output on many days. Its highest daily production was 5,536 ft in one day when the gang had use of the track for 6 hr 40 min. However, the gang has had an average of only 4 hr 24 min per day of on-track time. Clearing for trains and running considerable distances to and from work accounted for the remainder.

In 41 working days it completed 26 miles of track. It's average daily performance was 3,396 ft of track per day, 60.6 ft per man-hour paid for. Due to the time lost clearing

Small gang with Big-gang output



1 TRACK RAISE was made with Tamping Power Jack working with Trak-Surfacer, here being used to give the track a lift of from 1 to 1½ in. Men on knees is foreman checking the surface.

for trains and running to and from work this was somewhat short of the projected goal. However, since the gang averaged 732 ft of track per hour while actually working, it could have reached the goal of 4,000 ft in less than 5½ hr of on-track time.

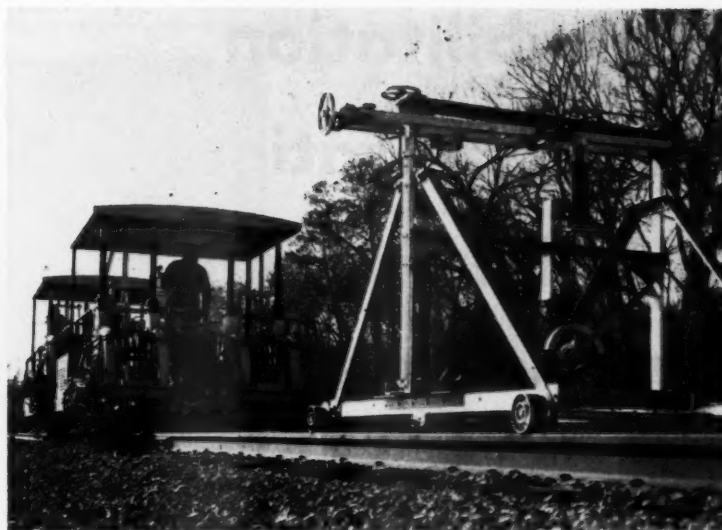
To increase the efficiency of the organization still further, a number of changes in the equipment consist have now been made or are contemplated. Instead of two Track Maintainers the final organization will have only one. This will enable the pace-setting machine to achieve maximum output. Also, a Nordberg Line Indicator, working in conjunction with the lining machine, has been introduced, eliminating the scope man. Finally, it is planned to perform the ballast equalizing and sweeping operations with a single machine combining both functions.

It is expected that gangs of this type will frequently be working on track having less ballast than at the original location. In that case, one or two men will be needed for throwing in ballast at the Tamping Power Jack and two at the Maintainer.

Taking this factor into account, the gangs will each consist of four machines, four machine operators, three or four laborers and a foreman. Since there will be only one Track Maintainer instead of two, the production is not expected to equal that of the original experimental gang. But with the tamper operating at capacity, the road's engineering officers are confident the gangs will average 650 to 750 ft of track per hour of on-track time. This, they held, is a pretty good record for this type and size of gang.

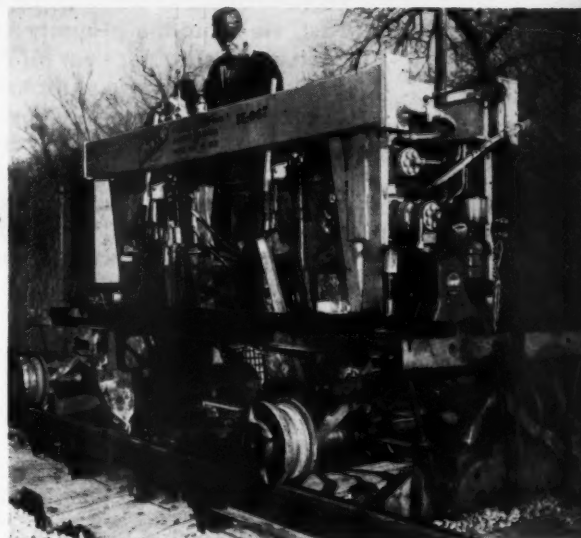
North Western develops high-production track-surfacing outfit having four machines, only eight men.

Production objective: 3,000 ft per day.



2 TAMPING was done with two Track Maintainers. Device in foreground is rear carriage of Trak-Surfacers.

3 SIGHTING for lining machine was done by assistant foreman using a lining scope.



These photographs show the composition of the original gang. Changes have now been made in the consist or are planned. Instead of two Maintainers there will be only one. Also a Line Indicator, working with the lining machine, has been added. And it is planned to do the ballast-equalizing and track-sweeping work with a combination machine.



4 BALLAST EQUALIZING was performed by a Ballast Regulator. Man on this machine also operated . . .



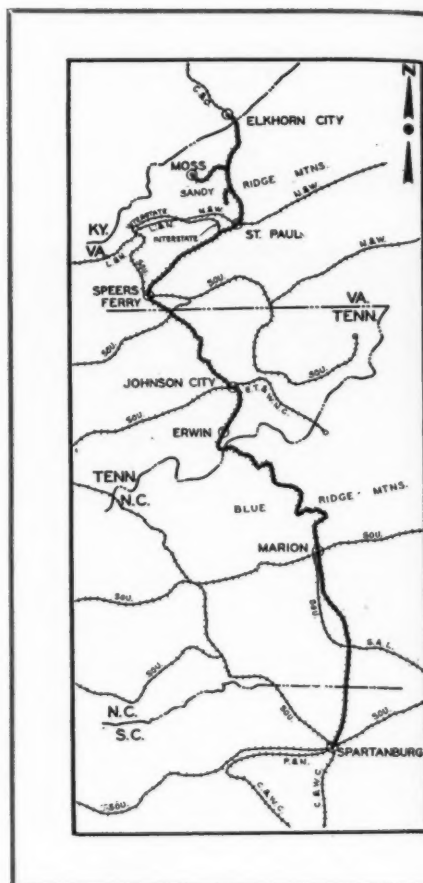
5 TRACK BROOM for removing the ballast deposited on ties during the tamping operation.

- Rehabilitation
- Reorganization
- Mechanization

Keys to M / W economies on mountain line

Back in 1949 an important decision was made on the Clinchfield. In effect it said: "We've got to put our maintenance of way operations on a more efficient basis. So we're going to take three steps. First, we'll put the property in top-notch shape. Then we'll reorganize our M/W forces. And third, as an essential phase of that reorganization, and as roadway machines are developed, we'll equip our forces fully with modern machinery."

Step one has been practically completed. Steps two and three will be carried out this year. But already the road, as told in this article, is beginning to reap the benefits of that historic decision made nine years ago.



First they built up the property

• The deterioration and rehabilitation of the Clinchfield are reflected in variations that have taken place in its M/W ratio (see chart page 56). Extremely low ratios prevailed on the Clinchfield from 1943 through 1948. It is now apparent that these low ratios were due to under-maintenance, not efficient maintenance. The depression of the 30's, with its lack of funds, and World War II, with its lack of men and materials, had taken their toll.

It was not until 1949 that the M/W ratio approached the average for all Class I roads. Then, for four years, reflecting the cost of the rehabilitation program, it surpassed the average for Class I roads. For 1957, however, with the rehabilitation work already producing maintenance economies, the estimated M/W ratio will be approximately 12.0. Thus, it is again below the average of all Class I roads. In 1958, and following years, the full effect of the reorganization

and mechanization program should keep the road's M/W ratio at a below-average level.

Rail service life extended

In 1950, main-track rail consisted of 100-lb, 112-lb and 115-lb sections. During the preceding years, the Clinchfield had carried out substantial rail-laying programs, laying about 12 per cent of its mileage each year with new rail. But the service life of this rail was relatively short owing to the heavy curvature and a maximum of 23 million gross tons of traffic carried annually. To obtain a longer service life, the chief engineer decided to use a heavier rail section, first relaying the heaviest traffic territory and progressing the relaying to the lightest.

Starting out with the laying of 5.5 track miles of 132 RE rail in 1950, the road persistently followed this plan. For the 1951 new-rail program

and for subsequent years, the 132 RE rail section has been the standard. At the end of 1957, the road had 236 track-miles of 132-lb and 40 track-miles of 112-lb and 115-lb rail in its main track.

The plan is now about to pay off in smaller new-rail programs for the next six years. "We will lay only about five miles of new 132-lb rail each year from 1958 to 1964," the road states. "We will then have removed all rail under 132-lb from the main track. The released 112-lb and 115-lb rail will be laid in yard and industry tracks."

Another method which the Clinchfield uses for extending the service life of rail is to lay it with the gage ¼-in tight. The road reports it has made enough tests to convince it that tight gage pays off in longer service life.

Also, supervisors keep a close watch of the rail on curves. When the ball shows signs of flowing to the field side, they transpose it without regaging. On some 14-deg curves the



SLIDE DETECTOR fence symbolizes problems encountered on Clinchfield.

It's a winding railroad with some heavy grades

The northern terminus of the Clinchfield is at Elkhorn City, Ky., and its southern terminus is at Spartanburg, S. C. Between these points the 276 miles of main track traverse five states and cross the rugged Great Smoky and Blue Ridge mountains of the Appalachian range. Owing to this terrain, the road has 110 miles of curved track ranging from 2 deg 30 min to 14 deg, of which 10 miles are curves of 12 deg and sharper.

Also, the grades must be relatively steep to rise over the mountains. There is, for example, a 1.2 per cent grade 22 miles long up the slope of the Blue Ridge mountains. Another is a 1.49 per cent grade about 9 miles long on the east slope of the Great Smokies. And there is a 1.7-per cent grade about 7 miles long adjacent to a 1.8-per cent grade 1 mile long where the line surmounts Sand Ridge mountain.

rail has been transposed three times.

The Clinchfield has been greatly interested in the performance of heat-treated rails installed on the Norfolk & Western in connection with the research conducted by the Engineering Division, AAR. From this test installation, the AREA Rail committee concluded that rail life had been increased 2½ times where shelling was the determining factor and 4½ times on the low sides of curves.

As a result of these tests, the Clinchfield intends to procure 822 heat-treated 132-lb rails in 1958 to replace open-hearth rails of the same weight on 14-deg curves. Also, the road intends to adopt the heat-treated rails as standard for laying on all curves over 6 deg. Heat-treated rails also are being used for all stock rails of turnouts and for the rails which bind manganese-insert frogs.

Although tie renewals were relatively high on the Clinchfield prior to 1950, the general tie condition was persistently poor. For the five-year

period 1945-1949, inclusive, renewals were made at the rate of 6.9 per cent of the total ties in track. However, about 40 per cent of these renewals was made with untreated ties with a correspondingly short service life.

To correct this condition, the Clinchfield decided to step up the renewal of ties for five years, using treated ties. The new ties are obtained from producers along the Clinchfield. Main-track ties are No. 4's and 5's and side-track ties are No. 3's and 2's. All are vapor-dried, adzed, prebored and treated and are of oak, except for a few mixed hardwoods. The preboring of eight holes per tie is for the sole purpose of getting penetration of the preservative into the tie-plate bearing areas. The eight holes are so positioned that the rail spikes are driven into solid wood and the hold-down spikes are driven in holes drilled in the field.

As a result of the intensive tie-renewal program, about 64 per cent of the total ties in the track are treated

hardwoods laid in the last eight years. Also, although tie renewals for the last three years were still higher than the national average, renewals are down to 4.4 per cent of the total ties in track. If the present rate of renewals is maintained for a few more years, greater benefits through fewer renewals and a stronger track and less maintenance are anticipated.

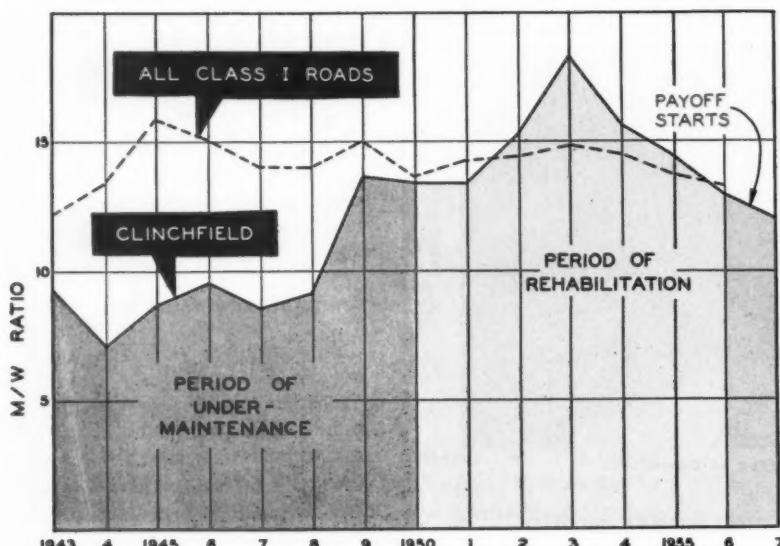
Other standards raised

In addition to the heavier rail and better ties now being used, the Clinchfield raised the standards for other track elements. Ties were spaced to obtain a uniform bearing under the rails, the present standard being 24 ties per 39-ft rail. This work was started in 1950 and completed in 1956 on both main and passing tracks.

Ballast specifications also were changed. Formerly, cinders, as well as limestone and slag, were used for ballast. Present ballast includes both limestone and sandstone, sized ⅝ in to 1¼ in. The sandstone is mixed with 10 per cent of washed sand, which filters down through the stone. The sand, ¼ in and finer in size, is used to break capillary action and to smother the mud in the roadbed. Ballast cleaning is not a problem on this road because fresh ballast is obtained from an on-line producer at a price which makes cleaning uneconomical.

The road uses 6-hole, 36-in head-free joint bars on all 112, 115 and 132-lb rail sections. Under the main-track rail it uses AREA standard 14¾-in tie plates on curves and the 13-in length on tangents. Conventional cut spikes are used for the rail-spike positions but the Bernuth-Lembcke lock spikes are used in the hold-down positions on both tangent and curved track. Both the Improved Fair and Unit anchors are used, applied 24 per 39 ft rail, 12 for each direction. Bird tie pads are installed under all tie plates on bridges and Racor tie pads under insulated joints.

The Clinchfield now has 24 passing tracks, totaling 33.5 miles in length, with the switches power controlled by CTC. These turnouts are No. 16's and have curved switch manganese-insert points and rigid manganese-insert frogs. Except for the 132-lb turnouts, these sidings are laid with 112-lb and 115-lb rail.



CLINCHFIELD will start realizing benefits from its revamping program in 1958.

Then—reorganization and mechanization

Up until 1954, the Clinchfield had 36 track sections, approximately 9 miles long. Two extra gangs, one laying rail and the other timbering and surfacing, assisted in the out-of-face track maintenance. In 1954, the number of sections was reduced to 26, varying from 12 to 15 miles long, and the two extra gangs were maintained.

Now only nine sections

In 1958, the road plans to reorganize and mechanize its M/W forces. The number of sections has been reduced to nine, varying from 12 to 43 main-track miles in length. Each section force will have a foreman, one or two apprentices and from 5 to 11 laborers. The larger crews will be employed on the longer sections and on those including large yards, as well as at locations where men are required for special work. The latter includes such items as cleaning up car refuse at mines, cleaning box cars before industry set-outs, handling material, and motor-car operation. The section forces will total 9 foremen, 12 apprentice foremen and 63 laborers.

The section forces will do all patrol work, make switch inspection,

maintain rail-and-flange lubricators, control weeds at road crossings, and clean culverts. They will load untreated ties for shipment to the treating plant, and distribute ties for tie gangs. Also, they will tighten bolts twice each year, maintain the joint gaps of rails, undercut stock rails by grinding, and perform miscellaneous work.

To carry out these duties, each section gang will be assigned a 1½-ton truck, either a stake-body or dump body. They will have a motor car equipped with a two-way radio and another motor car for switch and lubricator maintenance. Other equipment will include a spike hammer, a hydraulic spike puller, two bolt machines, a stock-rail grinder, and a full complement of hand tools.

At each of the three supervisors' headquarters other equipment will include a Hy-Rail car with open bed, and an M-19 motor car. An equipment trailer will be on hand for hauling motor cars and other track machines over the highways. A derrick car also will be available for handling frogs and other heavy material from truck to ground.

For use over the entire railroad there will be one each of the Model 15A, 30 and 40 Burro cranes. The

latter unit is equipped with a 50-ft boom and a 45-in magnet. Also available is a Caterpillar D6 bulldozer.

Surfacing on five-year cycle

Out-of-face timbering and surfacing is programmed on a five-year cycle basis. The work will be done by two mechanized gangs.

Each gang will have a foreman, an assistant foreman, 4 apprentices (which are working positions), 12 track-machine operators, 9 laborers and an assistant equipment maintainer. Among the equipment to be furnished each of these gangs will be a power track wrench for loosening bolts to adjust expansion and for re-tightening. Other equipment will consist of a spike puller, two Gandys, a SpikeMaster, a dual tie drill, a tamping jack, a production tamper, a lining machine, and a Ballast Regulator with plow and broom attachments.

In general, a track raise of from 1½ to 2 in will be made on the existing ballast. After raising, the ballast section will be filled out with about 5 to 5½ cars of fresh ballast per mile as required.

Equipment for maintainer

The assistant equipment maintainer accompanying each gang has a camp car divided into living quarters and shop. For servicing and making service repairs to the gang's equipment he has a 200-amp d-c arc welder with a 1,500-watt a-c power supply unit, a 1-hp air compressor, a bench grinder, an electric drilling outfit, an oxyacetylene welding outfit, a ½-ton four-wheel-drive Chevrolet pick-up truck, equipped with tool boxes, and a full complement of hand tools.

The Clinchfield has had an intensive rail-laying program each year since 1946. This work has been done since 1951 by a well-equipped gang of 43 men. This same equipment will now be used by a gang of about half the former size which will lay the reduced annual allotment of out-of-face new rail, handle the rail replacement on curves, and make the neces-

(Continued on page 62)

Track sections, reduced from 36 to 9, are each assigned a truck, two motor cars, a spike hammer, spike puller, two bolting machines and a stock-rail grinder.



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Past achievements of CF&I and the railroad industry have been a constant inspiration toward greater accomplishments, continuous development and dependable service.



PROPERTIES OF SECTIONS

ITEM	SECTIONS		COMPARISON OF 100 RE TO CF&I 1060	
	100 RE	CF&I 1060		
AREA: HEAD	3.80 Sq. In.	4.00 Sq. In.	+	5.3%
WEB	2.25 Sq. In.	2.50 Sq. In.	+	11.1%
BASE	3.90 Sq. In.	3.95 Sq. In.	+	1.3%
TOTAL	9.95 Sq. In.	10.45 Sq. In.	+	5.0%
Weight per yard	101.5 lbs.	106.6 lbs.	+	5.0%
G.T./mile — single track	159.50	167.5	+	5.0%
N.T./mile — single track	178.64	187.6	+	5.0%
Moment of Inertia (I)	49.00	53.6	+	4.6 ^{1/4} + 9.4%
Section Modulus, Head	15.1	16.1	+	1.0 ^{1/3} + 6.6%
Section Modulus, Base	17.8	18.8	+	1.0 ^{1/3} + 5.6%
Ratio, "I" to Area	4.9	5.1	+	0.2 + 4.1%
Ratio, Section Modulus to Head Area	1.5	1.5	SAME	
Distance, Base to N.A.	2.75"	2.85"	+	0.10"

Comparative maximum web stresses in the CF&I and A.R.E.A. rail sections, calculated in accordance with the method recounted in the A.R.E.A. Proceedings, Vol. 48, pages 987-991.

	psi	
106 CF&I	18,700	
100 RE	27,300	46%



Fishing and Base Dimensions of
119 CF&I and 115 RE are identical.
JOINTS FOR 119 ALSO FIT 115 RE.

PROPERTIES OF SECTIONS

ITEM	SECTIONS		COMPARISON OF 115 RE TO CF&I 1190.	
	115 RE	CF&I 1190		
AREA: HEAD	3.91 Sq. In.	4.32 Sq. In.	+ 10.5%	
WEB	3.05 Sq. In.	3.04 Sq. In.	- 0.3%	
BASE	4.29 Sq. In.	4.29 Sq. In.	SAME	
TOTAL	11.25 Sq. In.	11.65 Sq. In.	+ 3.6%	
Weight per yard	114.7 lbs.	118.8 lbs.	+ 3.6%	
G.T./mile — single track	180.7	187.0	+ 3.5%	
N.T./mile — single track	202.4	209.4	+ 3.5%	
Moment of Inertia (I)	65.6	71.4	+ 5.8 ^{1/4}	+ 8.8%
Section Modulus, Head	18.0	19.4	+ 1.4 ^{1/3}	+ 7.8%
Section Modulus, Base	22.0	22.9	+ 0.9 ^{1/3}	+ 4.1%
Ratio, "I" to Area	5.83	6.13	+ 0.3	+ 5.1%
Ratio, Section Modulus to Head Area	1.6	1.7	+ 0.1	+ 6.3%
Distance, Base to N.A.	2.98"	3.124"	+ 0.144"	

Comparative maximum web stresses in the CF&I and A.R.E.A. rail sections, calculated in accordance with the method recounted in the A.R.E.A. Proceedings, Vol. 48, pages 987-991.

	psi	
119 CF&I	13,400	
115 RE	15,200	13%



1360

-----132 RE

PROPERTIES OF SECTIONS

ITEM	SECTIONS		COMPARISON OF 132 RE TO CF&I 1360	
	132 RE	CF&I 1360		
AREA: HEAD	4.42 Sq. In.	4.86 Sq. In.	+ 10.0%	
WEB	3.66 Sq. In.	3.62 Sq. In.	- 1.1%	
BASE	4.87 Sq. In.	4.87 Sq. In.	SAME	
TOTAL	12.95 Sq. In.	13.35 Sq. In.	+ 3.09%	
Weight per yard	132.1 lbs.	136.2 lbs.	+ 3.10%	
G.T./mile — single track	207.4	213.7	+ 3.04%	
N.T./mile — single track	232.3	239.4	+ 3.06%	
Moment of Inertia (I)	88.2	94.9	+ 6.7 ^{1/4}	+ 7.6%
Section Modulus, Head	22.5	23.9	+ 1.4 ^{1/3}	+ 6.2%
Section Modulus, Base	27.5	28.3	+ 0.8 ^{1/2}	+ 2.9%
Ratio, "I" to Area	6.8	7.1	+ 0.3	+ 4.4%
Ratio, Section Modulus to Head Area	1.7	1.8	+ 0.1	+ 5.9%
Distance, Base to N.A.	3.2"	3.347"	+ 0.147"	

Comparative maximum web stresses in the CF&I and A.R.E.A. rail sections, calculated in accordance with the method recounted in the A.R.E.A. Proceedings, Vol. 48, pages 987-991.

	psi	
136 CF&I	10,800	
132 RE	13,300	23%

Fishing and Base Dimensions of
136 CF&I and 132 RE are identical.
JOINTS FOR 136 ALSO FIT 132 RE.

CF&I

COMPARISON OF THREE CF&I SECTIONS RELATIVE
TO A. R. E. A. SECTIONS BASED ON ACTUAL SIZE.

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Clinchfield—Keys to M/W economies

(Continued from page 56)
sary transposition of rail on curves. When current work has been completed, this force will be converted into a utility gang.

Other road gangs

The road also has two small welding gangs, each furnished with camp cars and truck. One of these forces, consisting of two welders and two helpers, builds up battered rail ends and engine-driver burns, and also builds up open-hearth switch points. The other welding force, consisting of one welder and a helper, does the electric-arc work. It repairs all manganese-steel frogs and switch-point tips, as well as grinding stock rails and building them up with stainless-steel rods topped with manganese. The arc welder is mounted on a three-wheel trailer. The latter can be moved by the welder and his helper by means of a small d-c motor which drives the two main wheels.

Ditching is carried out on a year-round basis because this territory has heavy rains which soon fill up the cut ditches. For this work the road uses two Model 22-B Bucyrus-Erie crawler-shovel-dragline combinations and four 30-cu yd side-dump cars. This outfit also picks up car droppings and refuse in both the empty and full-load coal yards.

B&B forces also reorganized

The bridge and building forces also are being reorganized and mechanized. Man-power requirements of these forces will consist of 4 foremen, 1 lead carpenter, 4 assistant foremen, 12—1st class and 14—2nd class carpenters, 9 painters and 19 laborers.

Since the Clinchfield has no passenger service and little lcl business, it has few wayside station buildings to maintain. Most of the building repairs involve structures located at its shops at Erwin, Tenn. For this reason, only one building gang is required and it will be located at this point. This force will be furnished

with a 1½-ton stake-body truck having a hydraulic-lift tail gate, a Fairmont A-5 motor car, and a full complement of power tools.

Most of the bridges on this road are of the permanent type, being mostly deck-plate girders, deck trusses and one through-truss structure. It has only 9 bridges out of a total of 81 that are timber bridges.

These structures will be maintained by two mobile bridge gangs, housed in camp cars. Each will have a 1½-ton stake-body truck having a hydraulic-lift tail gate, a Fairmont A-5 motor car, and a number of powered tools. These will include a 5-kw generator, either a 160 or a 365-cfm air compressor, the usual complement of steel-erecting air tools, electric nut-runners and drills, a derrick car, two Wright reciprocating saws, one gas-driven and one air-driven, and other tools.

Mobile gang for painting

Another mobile gang, consisting of a foreman, assistant foreman and nine men housed in camp cars, will do all the painting. It is expected that with this gang bridge painting can be placed on a five-year cycle. This unit will be furnished with a 1½-ton truck having a hydraulic-lift tail gate, a Fairmont A-5 motor car, a 5-kw generator, a 160 or 365-cfm air compressor, air and electric-operated chipping and scaling tools, two air-operated sand-blasting machines, and equipment for a four-gun paint-spraying outfit.

For assisting any of the above b&b gangs, and for carrying out miscellaneous b&b work, will be a small "roustabout" gang. This force, consisting of a lead carpenter, a carpenter and a helper, will be housed in a highway camp trailer. It will be equipped with a 1½-ton van-body truck, a 300-amp d-c welder, a 3.5-kw generator and an assortment of electric-powered and hand tools.

Two-way radio sets are installed on many of the track machines. For the rail gang, both the rail-laying crane and the motor car have two-way sets. For the tie-and-surfacing

gangs, sets have been installed on the Ballast Regulator and tamper. In addition, each gang has two heavy-duty pack sets, powered by a wet-cell battery, which save time when notifying the men to get off the track to clear for trains.

These are helpful in securing maximum production from the track gangs. Each morning the foreman has the caution and conditional-stop roadway signs moved to conform with the limits in which the gang will work that day. These limits appear on the train orders of all trains which will operate through the extra gangs. When approaching the gang, the engineer calls the foreman and advises him of his train's proximity, but he cannot pass the conditional-stop sign until authorized to do so by the foreman of the gang.

The track gang also is equipped with a portable telephone which can be plugged into any of the outlets, spaced approximately 2,000 ft apart, for discussing train arrivals with the dispatcher. This method of operation minimizes delay to trains and also results in maximum gang production.

Economies expected

The reorganization of forces as put into effect at the start of 1958, will produce substantial savings. The track force will remain substantial. As now constituted, it includes 20 foremen, 11 assistant foremen, 19 apprentices, 2 equipment maintainers and 3 assistants, and 140 laborers.

To make this new plan work, the road also made changes in its supervisory personnel. This group now includes a roadmaster, three track supervisors and three assistants, three signal, communication and electrical supervisors, a supervisor of welding and work equipment, and a b&b supervisor and an assistant.

"This reorganization was made only after many trips to other roads to observe their forces and equipment," the chief engineer explained. "Also, the machines we selected, after observing their performance under actual field conditions, are those which we think will best suit our needs."

Out-of-face timbering and surfacing is programmed on a five-year cycle basis. In this work, to be done by two mechanized gangs, the track will be raised 1½ to 2 in.

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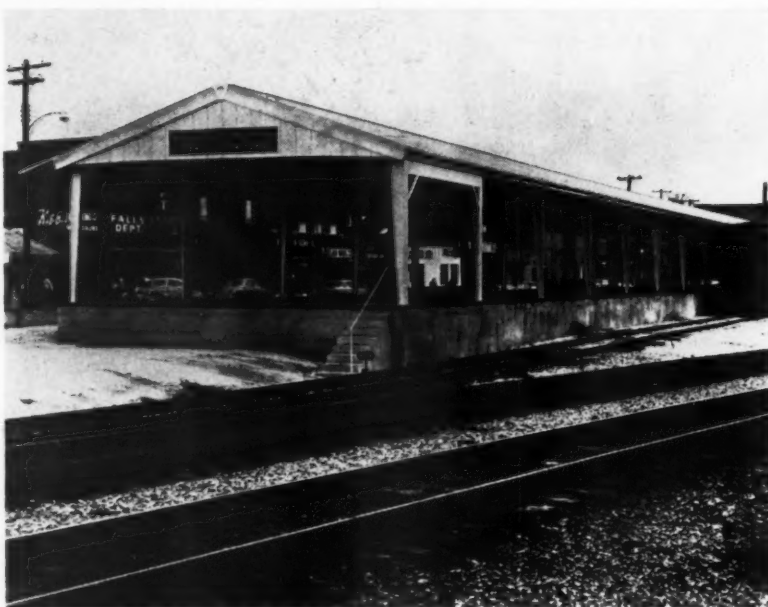
News briefs in pictures...



EXCESS TRACK is being removed by the Pennsylvania from several of its multiple-track lines. It saves the expense of maintenance and provides needed track material for other locations. Also, it effects savings in federal income taxes and real estate taxes in some states. Here ties are harvested by a machine, adapted from a snow loader, built by the railroad in its shops at Chambersburg, Pa.



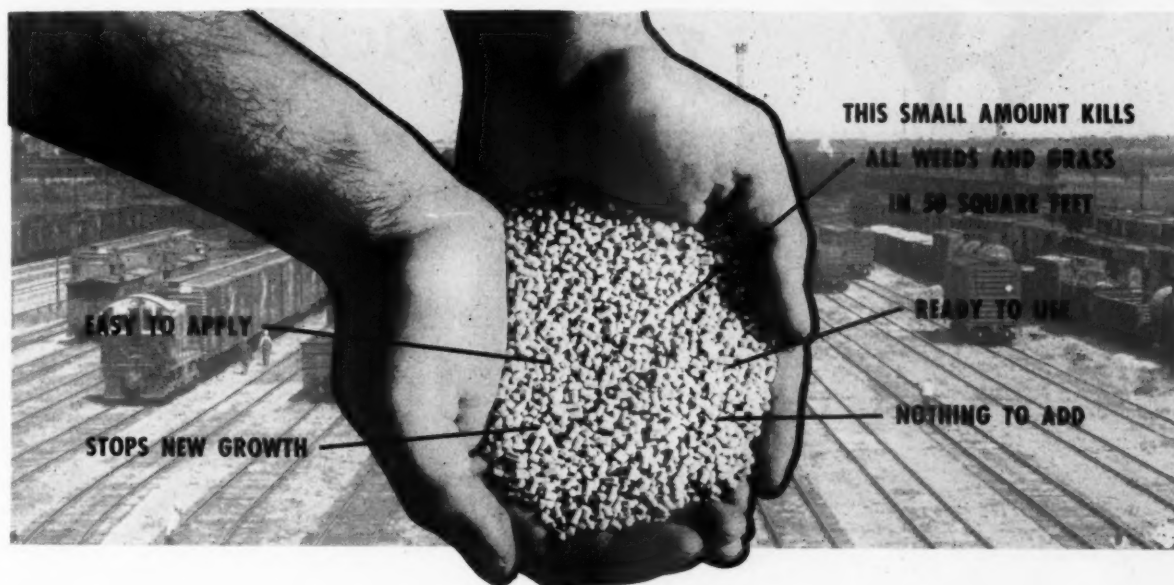
KEY STEP in processing an improved wrought iron is the addition of a reducing agent to the blown metal. It is called 4-D wrought iron by A. M. Byers Company to distinguish it from standard wrought iron. The improved product is said to increase corrosion resistance and also to have greater uniformity and improved physical and mechanical properties. The 4-D wrought iron was achieved by substantially increasing the deoxidation of the base metal, increasing the phosphorous content in relation to the other material components, and using a more siliceous silicate fibrous material.



MODERN and efficient loading platform, built by the Atlantic Coast Line at Rocky Mount, N.C., is said to have resulted in increased car loadings from that point. Intended primarily for use by tobacco shippers, it is also used for other products. The Armco steel building, 32 ft by 340 ft in size, has a 4-ft canopy along the truck-unloading side and a 12-ft canopy at its far end for bad weather.

NEW

CHLOREA[®] GRANULAR WEED & GRASS KILLER



CHLOREA GRANULAR is a new form of Chlorea weed and grass killer. The dry, dustless pellets require no mixing . . . they are ready and easy to apply with simple equipment. These advantages are combined with the powerful "kill all" effectiveness already demonstrated by Chlorea in powder and liquid forms (used on railroads for the past several years).

Here are the important facts about Chlorea Granular:

- 1 Kills ALL weeds and grasses . . . stops new growth for a year or more.
- 2 Particularly intended for use in locations where large scale spray application is impractical . . . such as freight yards, terminals, storage yards, under bridges and trestles, around warehouses, stations and other similar places.
- 3 Easy to use . . . may be applied with any mechanical type spreader used for granular materials; or may be broadcast by hand.
- 4 Low application rate . . . about 400 pounds to the acre . . . less where only annual vegetation is involved.

5 Contains 3 proven chemicals . . . this combination kills deep rooted weeds and grasses, as well as shallow-rooted grasses, weeds and annual seedling growth.

6 Is non-poisonous and does not create a fire hazard when used as directed.

CHIPMAN CHEMICAL COMPANY
Bound Brook, New Jersey

SEND FOR FREE SAMPLE PACKET

CHIPMAN CHEMICAL COMPANY, INC.
Dept. 6B, Bound Brook, N. J.

Please send free Chlorea Granular sample and bulletin.

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

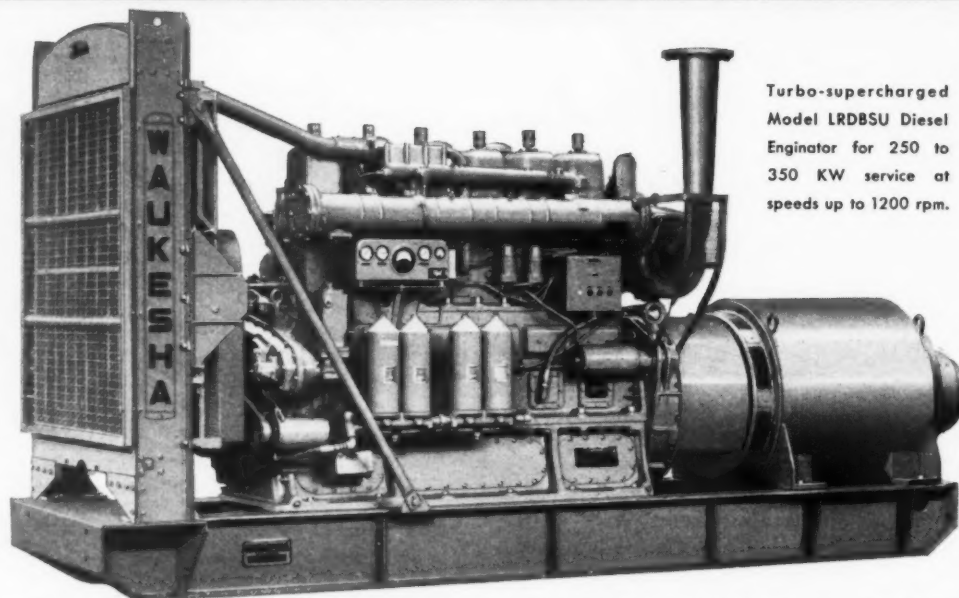
are **YOU**
protected
against
**POWER
FAILURES**



SAVE yourself high costs
and inconvenience—
of claims, work stoppage,
and property damage
with

WAUKESHA

Diesel **ENGINEATORS®**



Turbo-supercharged
Model LRDBSU Diesel
Engineator for 250 to
350 KW service at
speeds up to 1200 rpm.

● Out goes the power . . . then what happens?
At the classification yards? At the terminals—
passenger, or freight? Signal equipment? Will
the public and your personnel be safeguarded?
And perishables properly protected?

The best answer is Waukesha Engineators—
not only for stand-by service, but for prime

service, too. These Waukesha Engine-driven
generator sets are completely automatic and
fully equipped with start-up, safety shut-down,
and operating controls—in combination voltages
with electrical characteristics to specifications.
Available for Diesel, gas, and gasoline fuels,
up to 800 KW. Write for descriptive bulletins.

Railway Division • **WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN**

371

NOW ON-TRACK... with an AUSTIN-WESTERN



OFF-TRACK in 2 Minutes

With the addition of retractable guide wheels, the versatile self-propelled Austin-Western Hydraulic Crane becomes the most flexible *on-track off-track* tool available to the railroad industry.

Whether working *off-track* or *on-track*, or speeding down the rails from job to job, Austin-Western Hydraulic Cranes equipped with the Rail Crane Attachment are setting spectacular records every day—establishing new standards for work capacity.

Hydraulic cylinders, used to actuate vertical movement of the guide wheels, have sufficient stroke to permit operation on all size rails. Grade crossings and switches are negotiated with ease, and each guide wheel and actuating cylinder is spring-mounted—holding the guide wheels in contact with the rails, regardless of road-bed conditions.

The Rail Crane Attachment can be furnished as standard equipment or as an optional field installation.

For all the facts send the coupon below now.



AUSTIN-WESTERN

BALDWIN-LIMA-HAMILTON

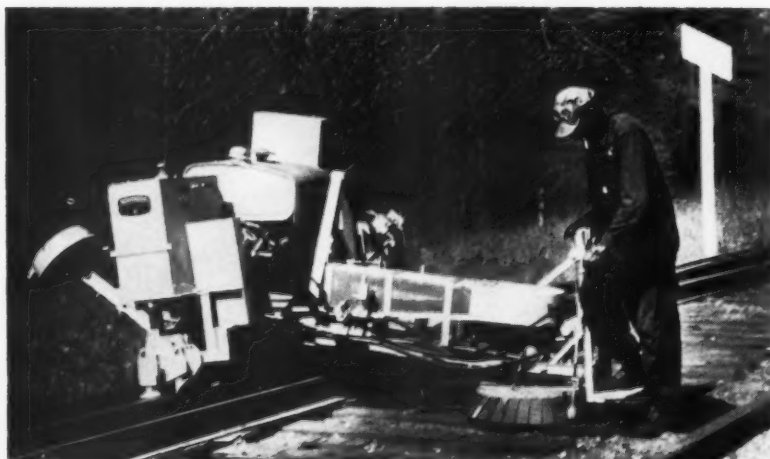
Construction Equipment Division

OTHER DIVISIONS: Eddystone • Lima •
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• Madsen • Pelton

AURORA, ILLINOIS, U.S.A.

See AUSTIN-WESTERN Hydraulic Crane equipped for on-track . . . off-track operation at the NRAA 1958 exhibit—Chicago Coliseum, March 10 - 13.

A special round-up of new and improved machines and other devices designed to help the M/W man in his efforts to reduce maintenance costs

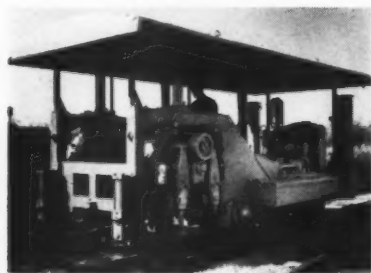


Self-propulsion makes . . .

One-man adzer

THE MODEL CZ adzer has been made into a one-man machine. This was done by making it self propelling through the addition of sprockets to the axles of the two wheels which run on the rail. A chain drive connects the sprockets to a hydrau-

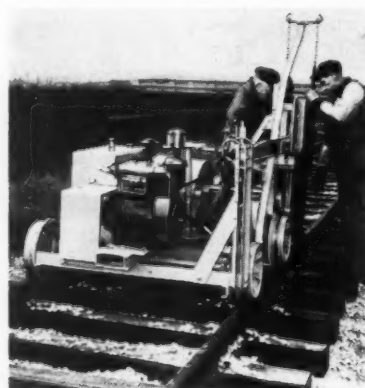
lic-drive motor mounted above each wheel. A hydraulic pump, driven by the gasoline engine, furnishes the power to drive the motors. The adzer operator controls the movement (either forward or reverse) from his working position and is thus free to concentrate entirely on the proper adzing of the ties. *Nordberg Manufacturing Company, Dept. RTS, Milwaukee, Wis.*



Improvements made to . . .

Production tamper

THREE improvements are featured in the latest model of the Matisa Speedtamp. One is the greater and more efficient use of hydraulics. Another is described as instantaneous split-second operation whereby either or both tamping heads are put to use immediately. The third is the simplification of design for mechanical tamping while retaining the principle of compaction plus vibration. *Matisa Equipment Corporation, Dept. RTS, 1020 Washington Ave., Chicago Heights, Ill.*

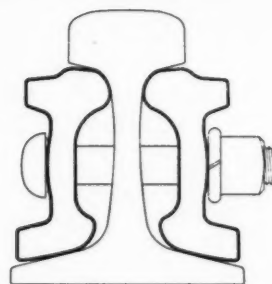


More output from . . .

Spike puller

GREATER production is claimed for the improved Model BP mechanical spike puller. This was accomplished by adding a larger, more-powerful engine and a hydraulic-motor drive for propulsion. With a two-man crew, the manufacturer states that the output is increased ap-

proximately 50 per cent over earlier models. *Nordberg Manufacturing Company, Dept. RTS, Milwaukee, Wis.*



Better rail contact in . . .

New joint bar

SEVERAL advantages are claimed through the use of a new rail-joint design. Designated Sure-Fit, the design features a curved outer face between the top and bottom flanges of the bars. One advantage is said to be improved bearing between the bolt assembly and the face of the joint bars. Another is reduced stress in the bolts, and a third is that the bars compel correct seating, thereby reducing stress in them as well as in the rails.

It is pointed out that conventional joint bars, with their flat outer faces, may assume a number of positions relative to the rail. This may result from the permissible manufacturing tolerances in both rails and joint bars, or because of wear in the contact surface of the joint assembly. When tilted inwardly at the top, the lower edge of the bolt head takes all of the bearing pressure, it is said. When tilted outwardly, the pressure is concentrated in the upper edge of the head.

The Sure-Fit design, it is stated, provides a rail joint with an outer face having the bolt assembly seating area at or near the longitudinal center line of the bolt holes. This bearing zone is located outwardly beyond the remainder of the face so that, when the bolts are tightened, contact is always closer to the axis of the bolts. Stresses then are not only reduced in the bolts, but this medium of bearing is said to assure a more even distribution of pressures at all points of contact between the joint bars and the rails.

In addition, it is said, the joint-bar design provides a bearing on the outer face of the bars which compels them to seat properly in the contact areas of the rails. Also, bolt pressure is applied in such a

(Continued on page 71)

FOUND!

the KEY to CUTTING COSTS
in TRACK LINING!

This is it!
WESTERN
JM-1 and JM-2 Line Aids

The true aid to greater economy in track maintenance

Here at Last! Track lining with savings of \$40.00 per hour and requiring a crew of only 6 men to line the same amount of rail as the old fashioned 24-man crews.

LINE-AIDS are precision tools which are the crucial missing links in jack lining as a transmission is to an automobile. The application of the JM-1 and JM-2 enables a track man to utilize the full power of the track jacks for moving the rail with a minimum of lift—far less than that which is usual with regular jacks or bar lining.

Designed to give the track man a tool to help him hold the line with greater accuracy, ease and safety.

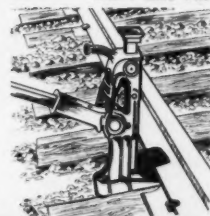


JM-2 Line Aid

FEATURES

- 1 Precision cut grooves to fit all rail.
- 2 Constructed of Westaloy steel for heavy-duty and long life with a safety factor of three.
- 3 Slipproof—will not slip from jack or rail.
- 4 Available in two types to meet all ballast conditions for operation with either large or small track jacks.
- 5 Utilizes the full power of the jack for lateral movement with very little track raising.
- 6 They are light, compact, easy to carry and set under rail. Line-Aids weigh 16 pounds.
- 7 No digging at the end of the ties.

JM-1 Line Aid



For Further Information
on how your road
can save money
write WRRS.

8324



WESTERN RAILROAD
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Division of Western Industries, Inc.

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NO SPLITTING OR TURNING



Lewis sealite
hook bolts

Lewis Sealite hook bolts for bridge and trestle construction have patented fins to grip wood, without wedging, splitting or turning.

Sealite washer nut stops seepage . . . retards corrosion and wood deterioration.

Available in Hot-Dip Galvanized finish for greater durability and economy, in black for low original cost. Also furnished with std. sq. and hex. nuts.

Lewis Sealite products are used by 85 per cent of America's Class 1 Railroads. All are made in the U.S.A. to A.S.T.M. specifications.

Write, call
or wire for
samples and
prices.

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504 Malcolm Ave. S. E.
MINNEAPOLIS 14, MINNESOTA



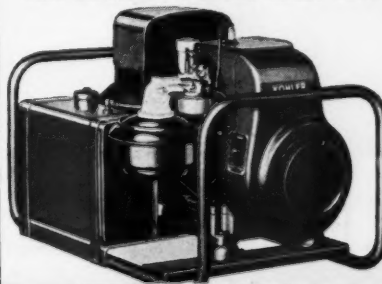
KOHLER ELECTRIC PLANTS

**On-the-job power
anywhere, any time**

For maintenance of way, portable Kohler plants provide compact, reliable power—also for wrecking trains, erection of signal towers, trestles. Other models for end-to-end communications, caboose lighting and refrigeration, work trains, tunnels, electro magnets. Backed by an 85-year-old quality reputation. Sizes from 500 watts to 50 KW, gasoline . . . 10 KW to 50 KW, diesel . . . Battery-charging plants in 6, 12, 32 and 110 volt models. Write for folder C-17.



Visit our exhibit
at the RAILWAY
APPLIANCES SHOW
Chicago
March 10-13



Model 2.5M25,
2500 watts, 115
volt AC. Manual
starting.

KOHLER CO. Established 1873 KOHLER, WIS.

KOHLER OF KOHLER

Enameled Iron and Varnish Coatings • Brass Fittings
Electric Plants • Air-cooled Engines • Precision Controls

Buy the BEST . . . buy JACKSON!



See the
JACKSON *
TRACK
MAINTAINER

* SHOWN WITH HYDRAULIC SPOT-TAMPING JACKS, OFFERED AS ACCESSORY EQUIPMENT ON 1958 MODELS AND IN KIT FORM FOR EARLIER MODELS.

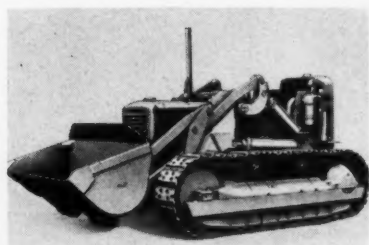
***At the N.R.A.A. SHOW in the Coliseum, Chicago
BOOTHS 119 to 123 and 138 to 141***

Learn why leading roads bought more of these machines during the past three years than all others in its category combined . . . and why it continues to be, by long odds, first choice wherever the complete facts are known. For both putting up and maintaining finest track under all conditions, this machine really has no equal. Be sure to see it and the other Jackson machines at the show.

JACKSON VIBRATORS, INC.
LUDINGTON, MICHIGAN

Products (cont'd)

manner as to keep the pull of the bolts on the center-line zone at all times, thereby eliminating any tendency to cock the bars. *Rail Joint Company, Dept. RTS, 50 Church St., New York 7, N.Y.*



Greater strength in . . .

New tractor shovels

TWO new models of the Traxcavator have been developed especially to meet severe operating conditions. The main features of both machines are said to be their strong undercarriage, high ground clearance with low center of gravity, a special low-speed transmission, and a greater length of the tracks on the ground for increased stability on unsure underfooting.

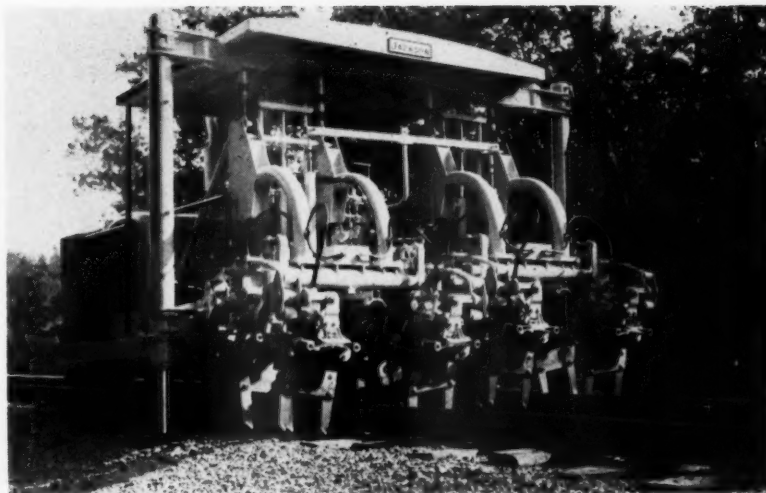
Heavy construction has been incorporated into all undercarriage parts, including the track roller frames, sprockets, front idlers, track rollers and trackcarrier rollers. The track group includes 40 sections of 18-in flat shoes with a length of 8 ft 10 in on the ground.

The new models are designated Caterpillar No. 955 (Series E) and Caterpillar No. 977 (Series E) Traxcavators. Both models retain the horsepower and bucket capacity of their Series C counterparts, as well as the oil-type flywheel clutch, 40-deg tilt-back ability at ground level, automatic bucket positioner and self-energizing brakes. *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*

Grids applied with . . .

Portable power pump

INSTALLATION of Teco spike grids with the Greenlee hydraulic Teco press is said to be further simplified by a new Greenlee portable gasoline power pump. Weighing about 64 lb, the new pump is said to be adaptable to the operation of various types of other hydraulic equipment. The pump acts as a companion to the Teco hydraulic press in embedding the grids and toothed connectors in wood. Also, it has an automatic change-over from high-volume delivery to low-volume high pressure for assuring fast, simplified installation of the connectors with the press in timber structures. *Timber Engineering Company, Dept. RTS, 1319-18th St., N.W., Washington 6, D.C.*



Convert large tamper for . . .

Spot tamping

MARKED ECONOMIES and increased footage are said to be obtainable in spot-tamping work with the addition of a jack-assembly to the Jackson Track Maintainer. This attachment is designed solely for those roads owning several of these production tampers and who have a great deal of spot-tamping to do as a normal operation in the intervening years of cycle maintenance. It is claimed that fewer men are needed when the Maintainer is adapted by the jack assembly to do spot-tamping work.

The spot-tamping jack assembly, applied at the factory to 1958 models, consists of a heavy-duty transverse frame

member attached to the front chassis section. It supports two 25-ton capacity hydraulic lifting rams by sturdy hinge-type mountings which permit quick and positive swing and lock to both the traveling and jacking positions. Two rail clamps, engaging the ball of the rail, project from the transverse member and are hydraulically actuated, independently operative and interconnected with the ram system, to automatically clamp the rail lifted. Power for the jack-assembly operation is provided by a double 2,000-psi pump serving all hydraulic operations of the machine. Jack conversion kits also are available for mounting on 1957 and earlier models of the Maintainer. *Jackson Vibrators, Inc., Dept. RTS, Ludington, Mich.*



Apply-it-yourself . . .

Guide-wheel kits

MOST makes or models of automobiles or light trucks can be used on rails, it is claimed, by an attachment designated the Rail-Road Conversion Kit. This equipment is supplied in kit form ready for installation by railroad personnel or local commercial firms. It includes front-and-rear-mounted manually retractable cast-

steel guide wheels on automobile hubs. Safety locks are provided to maintain the wheels in both the "on-rail" and "off-rail" positions. Both assemblies retract underneath the vehicle for adequate highway clearance it is said, and in no way interfere with normal vehicular operation.

The unit is completely assembled except for mounting brackets to be drilled and bolted to the specific vehicle frame

(Continued on page 74)



**Keep ballasted areas
free of invading vegetation
with a new "crew" . . . *Dow Grass and Weed Killers***

Modern, high-speed railroading calls for ballast that drains properly and won't heave. And the "crew" that will keep your ballast in sound shape for high-balling schedules is made up of Dow grass and weed killers.

Tie replacement is easier, too, when you repel invading grasses like Bermuda, quack and other harmful grasses with Radapon®. The systemic

action
sures o
grasses
Radap
modern
that h
of unv
specific
of righ
CTC o



action of this powerful herbicide insures dependable control of stubborn grasses.

Radapon is only one member of the modern chemical "crew" from Dow that helps you keep your way clear of unwanted vegetation. There's a specific Dow chemical for every foot of right-of-way . . . from keeping CTC controls and switches free and

clear to eliminating brush that menaces communication lines and makes crossings hazardous.

All of the full line of Dow chemicals are designed to fit into a planned vegetation control program. Such a program, calling for exactly the right chemical in the right amount at the right time, will save you time and money all along your road. A profes-

sional applicator, with the experience, equipment and trained personnel it takes to do a better job for less, will be glad to show you how.

Learn how the Dow chemical "crew" can help you. Send for your free copy of the Dow book on vegetation control for railroads. Write: THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Dept., Midland, Mich.

YOU CAN DEPEND ON

DOW

Products (cont'd)

for proper alinement. Front and rear units weigh approximately 285 lb each. The design allows operating speeds on the rails up to 50 mph. *W. T. Cox Company, Dept. T, Railway Sales Division, 6308 Troost Ave., Kansas City 10, Mo.*

New driving principle in . . .

Power hammer

DIGGING, driving, cutting, splitting, breaking, chiseling, tamping, picking and drilling are some of the operations which can be done with a new portable power hammer, simply by changing the tools. It is a self-contained unit, powered by a 1 1/4-hp two-cycle, air-cooled gasoline engine.

A new driving principle creates a high-velocity blow at the rate of 1,500 blows per minute through a new spring-and-crank assembly. The design of this assembly is said to balance the shock load usually associated with this type of equipment, thus reducing operator fatigue. All standard digging, cutting and tamping tools, 13 in number, are available for this machine. *Racine Hydraulics & Machinery, Inc., Dept. RTS, Racine, Wis.*



It's a heavier machine . . .

Ballast Regulator

A NEW HEAVY-DUTY Ballast Regulator has been developed to meet the needs for a heavier model of this machine for 1958 maintenance operations. It has heavy-duty truck axles and enclosed drive, longer wheel base, and a heavier frame. It features a road crossing scari-

fier which is said to remove dirt or macadam in road crossings in minutes. A snow plow, easily attached, clears tracks at a rate of four to five miles an hour, according to the manufacturer. A rotary brush assembly may be used in track dressing operations to remove ballast from tops of ties, fill empty cribs and place excess ballast on the ballast shoulder. *Kershaw Manufacturing Company, Dept. RTS, Montgomery, Ala.*



Cribs compacted by . . .

Production tamper

TRACK will stay tamped 25 per cent longer, according to the manufacturer, by the addition of two electrically operated crib-tamping shoes to the Plasser hydraulic tamper. The shoes, mounted on the right and left sides of the machine, work on the ballast between the ties in the crib behind the last tie tamped. The purpose is to consolidate the ballast in the crib and fill the voids left by the withdrawal of the tamping tools. By doing this, the manufacturer states, the compacted ballast column made

by the tamping tools under the ties is retained because it cannot fall away under the vibration of traffic from the compacted area.

The improvement consists of a generator and two vertical-acting hammers. The latter work at the rate of 960 blows per minute and produce blows of about 330 lb on a convex shoe approximately 8 in square. The hammers work independently of the tamping tools. This improvement can be mounted on every machine made by this manufacturer to fit the tie spacing. *Plasser Railway Machinery, Dept. RTS, 175 Fifth Ave., New York 10, N. Y.*



New lightweight . . .

Utility motor cars

MODELS 56W and 57W represent a new series of lightweight motor cars for utility service. Patrol, inspection and section use are all operations within the scope of these cars, according to the manufacturer, because they not only have the necessary power but also are light enough to enable one man to remove them from the track. The rear lift is said to be 110 lb.

Model 56W is designed as a 6 to 8-man unit and is equipped with a Wisconsin TH engine developing 16.4 hp. Model 57W is a 1 to 4-man unit with a Wisconsin engine developing 9 hp. Both are driven through an automotive-type gear transmission which allows two speeds forward and two reverse. The manufacturer states that this transmission permits great flexibility since low gear can be used when starting with loads, on grades and against the wind. Final drive is to the rear axle by roller chain. Both units also have 95-per cent interchangeable parts to reduce

(Continued on page 77)

BULLDOG anchor's two-way grip multiplies holding power



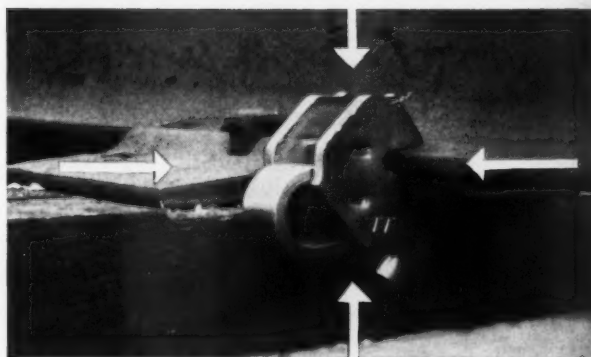
BULLDOG is factory-assembled as one unit that's easy to ship, handle and install.

Two-way grip multiplies holding power. Tie-bearing surface is broad, flat and deep. Clamp is angled to resist the heaving of frozen ballast.

When you anchor track with the BULLDOG you get a tremendous bonus in anticreep protection. That's because the BULLDOG has a positive two-way grip.

Two elements create this grip: a resilient steel spring and a double-jawed clamp of hardened steel. These two components, because of their integral design, grip the rail horizontally and vertically, and actually multiply and sustain the holding power of each other.

For the full story — or if you'd like to test the BULLDOG anchor on your own road — contact your True Temper representative, or write True Temper, Railway Appliances Division, 1623 Euclid Avenue, Cleveland 15, Ohio.



New hydraulic machine installs anchors rapidly and accurately

True Temper's speedy new applicator positions each BULLDOG anchor snugly against the tie, holds it there, and uses smooth hydraulic power to "squeeze" it onto the rail base. It does not disturb gauge and does not "roll" the rail. Every anchor is a working anchor. Write for details.



OTHER TRUE TEMPER RAILWAY PRODUCTS: Track Shovels • Ballast Forks • Weed Cutters • Hammers • Sledges • Scythes • Safety Rail Forks

TRUE TEMPER



**BULLDOG
RAIL ANCHORS**

YOU CAN LOOK TO  FOR LEADERSHIP

Visit KALAMAZOO at Booths 102 through 105 at the N. R. A. A. Exhibition and see how this modern equipment can benefit your track program

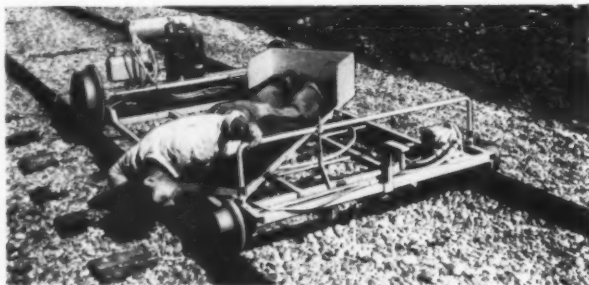
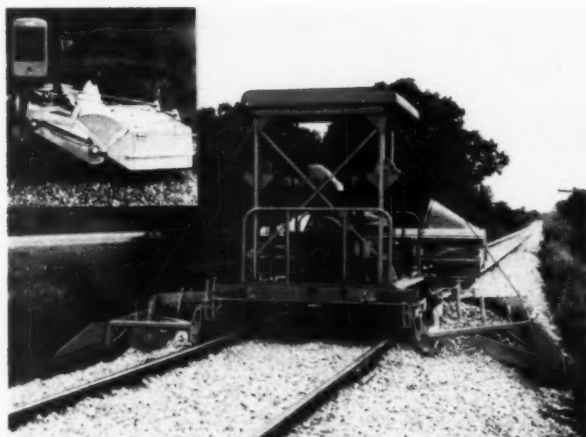


KALAMAZOO "Handyman"

Now offered with a split head arrangement to allow the tamping of either rail separately or both rails at the same time. Raises, nips, levels, jacks and tamps ties with minimum settling. Electric vibratory tamping action. Improved hydraulic system with Vickers components. Suitable for use with wire surfacing device. Send for Bulletin HM-1B.

KALAMAZOO Model "29" Sweeper and Equalizer

Transfers ballast from shoulder onto ties for tamping. Shapes, smooths and levels shoulder and berm. Broom assembly moves excess ballast from center of track to outside. Sweeps up thoroughly after all other operations are completed. Broom assembly also available for installation on your own units. Send for Bulletin TS-1.



KALAMAZOO Model FSC Foreman's Car

Makes track sighting faster, easier, more accurate on raising, surfacing, spotting and construction operations. Smooth hydraulic drive has Vickers components. Operator's platform with padded cushion rotates 360°. Bulletin FSC-1.



MANUFACTURING SINCE 1883

CAPITALIZE ON KALAMAZOO CAPACITY TO GET THE JOB DONE QUICKLY!

KALAMAZOO MANUFACTURING COMPANY

KALAMAZOO, MICH., U.S.A.

Products (cont'd)

inventory costs and facilitate servicing of cars. This includes engine, transmission, axles, bearings, brakes and wheels. *Kalamazoo Manufacturing Company, Dept. RTS, 1827 Reed St., Kalamazoo, Mich.*



To keep food hot . . .

Vacuum carriers

SOUP, coffee, milk and all hot or cold foods and beverages may now be transported in standard, portable containers right out to the job by a line of carriers. Designated AerVoid Carriers, these units are made of stainless steel and are vacuum insulated. According to the manufacturer, they have the exclusive characteristic of being "in compliance" with the construction requirements of the U.S. Public Health Service.

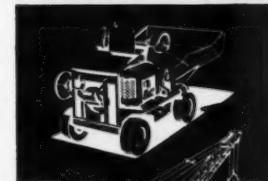
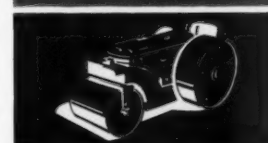
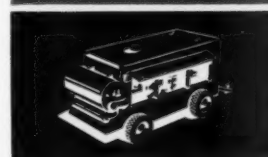
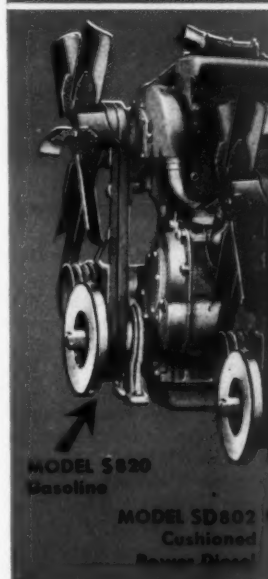
Five standard sizes of AerVoid food carriers are available. Any of these can be used for a single food, or soup served by ladling, and they range from 3 to 11 gal in capacity. Four of them can be used with any of five different pan assemblies for 2, 3, 4 or 5 different foods in a single carrier. Some carriers have dispensers for serving coffee and milk. *Vacuum Can Company, Dept. RTS, 19 S. Hoyne Ave., Chicago 12, Ill.*

Offers pneumatic . . .

Production tamper

AFTER four to five years' service on a Class I railroad, an all-air-actuated production tamper has now been introduced under the name Speedmatic tie tamper.

RAILWAY TRACK and STRUCTURES



In the Finest RAILWAY MAINTENANCE EQUIPMENT



...CONTINENTAL RED SEAL POWER

More than 100 basic engines, built to 2,000 different specifications, equip Continental with power plants tailored to the requirements of practically every type of rail maintenance machine . . . You're further ahead, all ways, when you standardize on equipment that offers the BIG Extra: dependable **CONTINENTAL POWER.**

*Continental Motors
Corporation*

MUSKEGON, MICHIGAN

THE SUN NEVER SETS ON CONTINENTAL SERVICE

MARCH, 1958

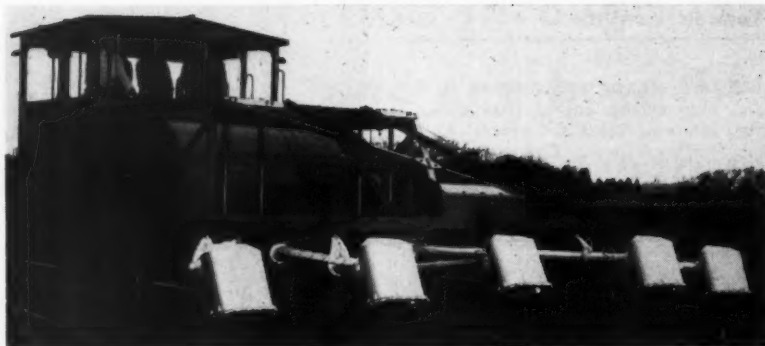
77

Products (cont'd)

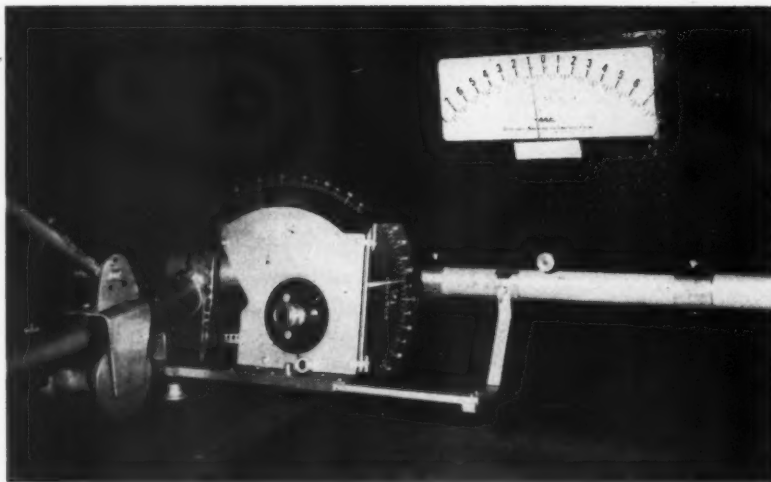
It is a self-propelled machine motivated by a 600-cfm Ingersoll-Rand rotary compressor powered by a No. 671 General Motors diesel engine. It is a 12-tool tamper with six Ingersoll-Rand MT8 tamping units mounted on each half of a split crosshead.

An outstanding feature of this tamper is that it can be pre-set for automatic control of the tamping cycle. This includes the number of insertions as well as the movement of the tamping tools. Another feature is that the 12 tampers shift laterally on the up-movement when the tools are withdrawn so as to tamp adjacent points on the next tool insertion. The manufacturer points out that this method of tamping is similar to the shovel shifting done with hand tamping, and insures a continuous compacted area under the tie instead of compaction only at selected points. Maximum lateral movement is 7½ in. When the pre-determined number of insertions has been completed, the tamper heads automatically raise and stay up while the operator positions the machine over the next tie. The tamping heads are located in advance of the leading axle.

The manufacturer states that the machine can be set for both light and high



track raises and can be used for spot-tamping work. Also, that it performs equally as well in hot and cold weather and at high and low altitudes. It is rated to tamp up to 700 ft of track per hour, depending upon local track conditions and the height of the raise. When deadheading it has a speed of 25 mph. When clearing for trains, the Speedmatic raises itself for the insertion of set-off rails, and moves under its own power onto the set-off. *Pettibone Mulliken Corporation, Dept. RTS, 4700 W. Division St., Chicago 51, Ill.*



Conditions checked by . . .

Track analyzer

ACCURATE, rapid determination of the four elements affecting railroad track-riding quality is said to be the purpose of the new ARC Track Analyzer. When used in conjunction with the ARC Curveliner, it is claimed that one man can exactly predetermine the corrections required to produce good riding track. The vertical ordinates of surface, the horizontal ordinates of line and variation in cross-level and gage are measured in 1/16-in units.

Used as a quality-control device, it is

said that the operator may precisely check the performance of surfacing, lining and gaging operations in track maintenance. The instrument may be purchased as a complete unit or as an accessory to existing ARC Rollordinators. The ARC Levelmeter, which is the cross-level indicating device of the Track Analyzer, is demountable and may be purchased and used separately with track-inspection cars for rapid cross-level inspection. Another model with high magnitude is available for use with power jacks and spot-surfacing tampers. *American Railroad Curvelining Corp., Dept. RTS, 137 Hollywood Ave., New York 63, N.Y.*

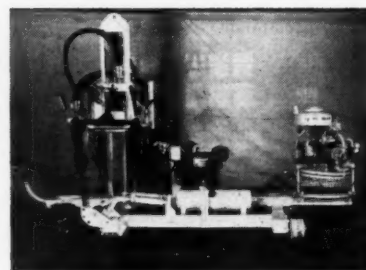
Improvements made to . . .

Weed burner

BETTER operation is claimed for the W55 weed burner and snow melter because of several recently incorporated improvements.

The most important is said to be the replacement of the low-speed mechanical drive in the two-speed auxiliary transmission with an hydraulic drive. This new low-speed drive is especially adapted to snow-melting service where smooth operation is desired at speeds below one mile per hour.

Other improvements reported are a split-flow hydraulic pump in place of the two gear-type pumps, a larger reservoir and strainer, low-speed cut-in generator, burner heads that swing horizontally, and a 12-volt electrical system. *Fairmont Railway Motors, Inc. Dept. RTS, Fairmont, Minn.*



Self-propelled . . .

One-man spot tamper

A NEW self-propelled spot tamper, designated W99 Series A, has been made available and is actuated by both air and hydraulic power. Air is used to operate the tamping tools and a rail clamp. Hydraulic power propels the unit, raises and lowers the tamping head and moves it laterally, and tilts the tamping tools under the ties for the tamping action.

It is operated by one man and is fitted with pneumatic set-off wheels. Before removing the unit from the track, the compressor and its base are lifted from their mounting. A portable set-off is available as an extra. *Fairmont Railway Motors, Inc., Dept. RTS, Fairmont, Minn.*



AMERICAN TRUCK CRANE SPEEDS GN YARD, MAINTENANCE-OF-WAY JOBS

Working in the yards and out along the main line, Great Northern Railway's new American 100 Series Truck Crane demonstrates its unusual flexibility on a multitude of jobs. In the terminal area at Seattle, Washington, the American removed and re-layed track, pulled out and loaded old concrete foundations for a new parking area.

On the GN main line between Edmonds and Ballard, Washington, trackage was adjusted to make a runway for the American Truck Crane. The convenience of driving and working the crane alongside the track without interfering with main line traffic is especially useful in the area between Seattle and Everett where mud slides present a problem during the rainy season.

HIGHLY EFFICIENT American Dies-Electric* Locomotive Cranes, like this Great Northern unit, have proved their dependable workability on leading roads. Operating records prove that these Americans—with capacities from 25 to 130 tons—do more work per day—at substantially lower average cost!

*Trademark



Great Northern's versatile American performs many jobs that used to require a complete work train. It's equipped for pile driving, clamshell, crane and magnet work. Highly efficient, weight conserving design means the crane can move right onto highways and travel to the next job without time consuming weight stripping. The American sets up for work fast—the power-raised high gantry locks in position easily. Simple, safe pin connections speed boom section assembly!

Power and balance of the 12½ and 15 ton capacity 100 Series is proved by their ability to lift a total of 100 feet of stick *right from the ground without help!* These cranes offer a low-cost solution to yard and right-of-way construction and maintenance. Write for descriptive catalogs on a complete line of off-track cranes and excavators. Capacities start at ½-yard, 12½ tons!

AMERICAN HOIST and Derrick Company

St. Paul 7, Minnesota

AMERICAN HOIST
PACIFIC COMPANY
Special materials
handling equipment

CROSBY-LAUGHLIN
DIVISION
Drop forged fittings
for wire rope-chain

EXCAVATORS-CRANES
to 2 yds.-50 tons

LOCOMOTIVE CRANES
to 130 tons

DERRICKS-HOISTS
to 800 tons

REVOLVER CRANES
to 400 tons

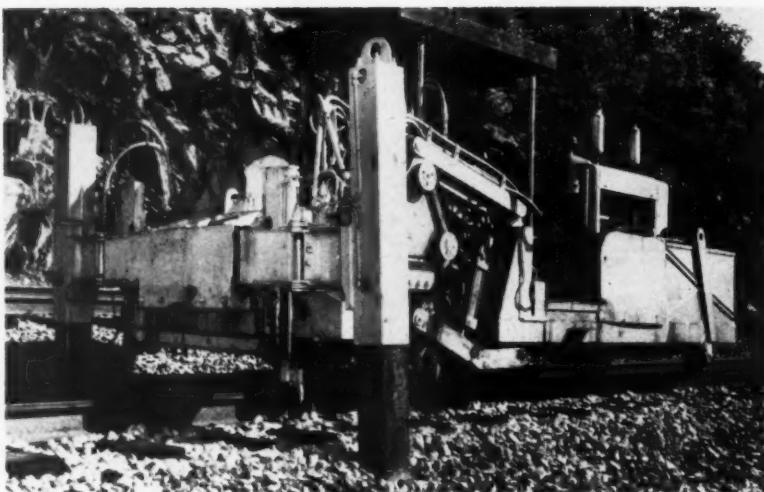
Products (cont'd)

Four tamping heads on . . .

New spot tamper

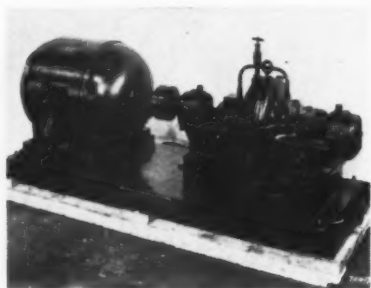
THE WORK LOAD of a production tamper and a Jack-All have been combined in a new spot tamper to provide quick efficient smoothing of low spots in track which has already been surfaced. The manufacturer claims that it can maintain surface on 75 to 150 miles of track a year, and that it will tamp through switches. The latter feature also enables this unit to be used for surfacing in classification yards and terminals.

Tamping bits on this new spot tamper actually go under the tie. The four independent tamping heads provide versatility of operation since they may be operated all four at the same time, in pairs, or individually. The tamping bar is provided with interchangeable diamond-point tamping tips which are 2 in apart under the tie during tamping operations. The machine is completely hydraulically operated and



is provided with front target and cross level. Equipped with hydraulic jacks, it will, the manufacturer states, effectively tamp a raise from 0 to 8 in, and provide

a tamped area under the rail and 15 in to 18 in on each side of the rail. *Kershaw Manufacturing Company, Dept. RTS, Montgomery, Ala.*

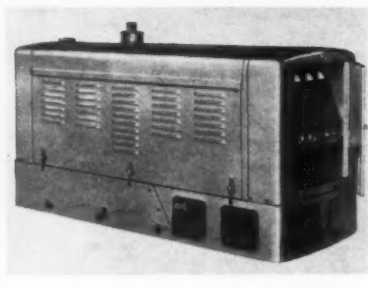


Many uses for . . .

Two-stage pump

A WIDE RANGE of uses is claimed for a new two-stage pump, designated the 1½ GT. It is designed for general water service where low capacities and medium heads are needed. The 1½ GT handles capacities up to 250 gpm and heads up to 600 ft. This line of centrifugal pumps also will handle pressures up to 255 psi and temperatures to 300 deg F.

The pump is horizontally split and has its two single-suction impellers mounted



back-to-back to neutralize any axial thrust. All internal parts of the pump are said to be accessible without disturbing the suction or discharge piping. Dust-tight enclosure for the ball bearings on both ends of the shaft are provided by flange-mounted bearing housings, bolted and dowelled to the casing. Deep stuffing boxes can be packed solid or arranged for injection of external sealing liquid. *Ingersoll-Rand, Dept. RTS, 11 Broadway, New York 4, N.Y.*

New series 10 and 15-kw . . .

Electric plants

FULL-RATED electric power for both stand-by emergency use and for primary power applications is claimed for a new HC Series of water-cooled, revolving-armature 10 and 15-kw electric plants. Completely self-contained, the new series is available in either 10,000 or 15,000-watt a-c size ranges in voltages to 460. The all-climate generator is direct-connected to a heavy-duty 41-hp Continental F-162 engine. The 4-cylinder engine operates on either gasoline or gaseous fuel. Standard features include a 12-volt battery charging generator.

The generator is self-aligning and has a generous overload capacity. It provides voltage regulation of plus or minus 5 per cent, with frequency regulation of 3 cycles maximum. The generator output is radio-suppressed for normal frequencies. The plants are available in all standard a-c voltages, 50 and 60 cycle, and are rated at 0.8 power factor, 3-phase, unity power factor and single phase. *D.W. Onan & Sons, Inc., Dept. RTS, 2515 University Ave., S.E., Minneapolis 14, Minn.*

Quieter riding on . . .

Rubber-tread guides

QUIETER on-track operation is assured with the current model of the A34 Hy-Rail through the use of guide wheels having rubber treads. Control switches for raising and lowering the guide wheels are heavier and of waterproof construction. The basic vehicle, a 1958 Pontiac station wagon, now has 270 hp, a factory-installed power-lock differential, and heavy-duty coil springs for the rear suspension. *Fairmont Railway Motors, Inc., Dept. RTS, Fairmont, Minn.*





"Say . . . those guys don't let any grass grow under their feet . . . weeds or brush either!"

Chipman chemicals and application service are backed by over 45 years of railroad weed control experience. A broad line of weed, grass and brush killers is available. Each chemical or chemical combination is formulated for specific vegetation problems. Most widely used are these trade-name products:

Atlacide • Atlas "A" • Chlorax • Chlorea • Methoxone-Chlorax
TCA-Chlorax • Methoxone-Chlorea • Chipman Brush Killer

We can solve *your* weed problems with the *right* chemicals and application service. Check with us today!

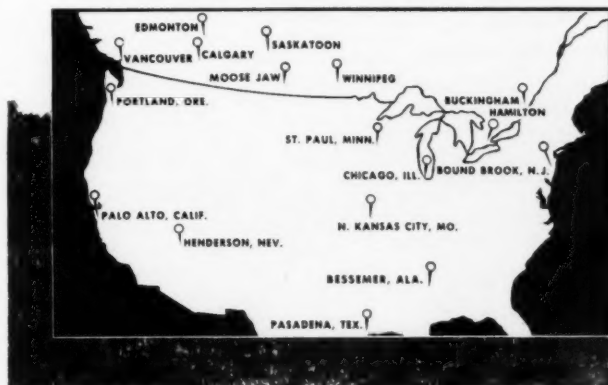
CHIPMAN

Chemical Company, Inc.

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Pioneer in Railroad Weed Control

17 Strategically Located Chipman Plants



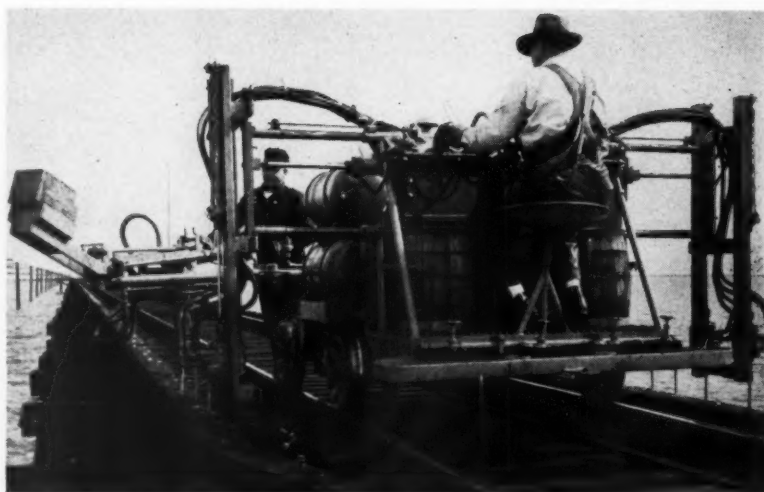
Products (cont'd)

Several air tools on . . .

Bridge deck machine

MOST of the tools used in timber deck work are said to be incorporated, with a 125-cfm compressor, on a new unit designated the RMC Bridge Deck Machine. Tools included are: Four wood borers for automatic positioning and drilling of from one to four holes in a single operation; two hand-held borers for use where automatic drills will not reach; two hand-held impact wrenches for removing lag screws from guard rails, etc.; a pantograph-mounted spiking hammer which will reach outside guard timbers and down to cap, if necessary; and extra air outlets to permit additional air tools to be hooked up, such as air hammers and reciprocating saws. The machine also may be used for spraying purposes.

Propulsion is said to be controlled either directly from the operator's desk or remotely from the pantograph holding the spiking hammer at the rear. Pantograph design also assures that spikes are driven vertically, regardless of the pantograph position. The machine is propelled through



a two-speed transmission at speeds from 5 to 20 mph.

A hydraulic center lift and turntable are provided for quick reversal of direction or removal from the track. An optional lightweight set-off further simplifies removal from the rails. Any piece of this

set-off, it is claimed, can be handled by one man, and two men can assemble it in five minutes. Three minutes are required, it is said, for moving the entire unit onto the set-off. *Railway Maintenance Corporation, Dept. RTS, Box 1888, Pittsburgh 30, Pa.*



Full 18-yd loads with . . .

Four-wheel scraper

NEWEST addition to the LeTourneau equipment line is an 18-cu yd four-wheel scraper designated the CT Fullpak scraper. It is designed for use with tractors of 90 hp or more. It features a clean, smooth bowl interior for minimum resistance in loading and unloading, and the scraper bottom remains nearly flat while loading so that the material does not have to travel "up-hill." The cutting blade, in three sections, is 9½ ft long and is angled precisely with the floor to reduce loading resistance. Its rear wheels track well within the cut width for smooth operation.

To provide maximum "roll" and "boiling" action in the loading process, the CT features a specially curved deflector plate and anti-spill grid on top of the tailgate structure. The resultant full boiling is said to virtually eliminate voids and easily fills bowl corners and apron for extra heaping loads. According to the manufacturer, big loads come out as easily as they go in. On a spread, the apron swings up to provide an opening more than 5½ ft high for quick discharge while the powered tailgate moves forward wiping the bowl clean. By carrying its load low, the center of gravity of the CT Fullpak is said to contribute to maximum



No toting with . . .

Track-jack carrier

A NEW machine, designated the Track Jack Carrier, has been designed to minimize jack-handling costs in conjunction with production-tamper work. It is powered by a Briggs & Stratton air-cooled, 3.35-hp, 4-cycle engine and is equipped to carry five track jacks and one water cooler on each side of the car. The jacks

stability and sure-footedness under steep operational conditions. *LeTourneau-Westinghouse Company, Dept. RTS, Peoria, Ill.*

rest in tilting trays which can be tipped to place jacks at the desired location alongside the rail. The machine, normally operated at 2.5 mph, is equipped with a reversing device which can be actuated without first coming to a complete stop or shifting gears. This is to enable the operator and one helper to pick up and distribute jacks with minimum effort. Two 10-gal water coolers are carried on the car for providing a convenient method of distributing drinking water to the working force. It is claimed that actual operations have proven that the use of this carrier will replace one jack-carrying man in rail-raising operations consisting of 2,000 ft per day. *Northwestern Motor Company, Dept. RTS, Eau Claire, Wis.*

One Man Clean-up Crew

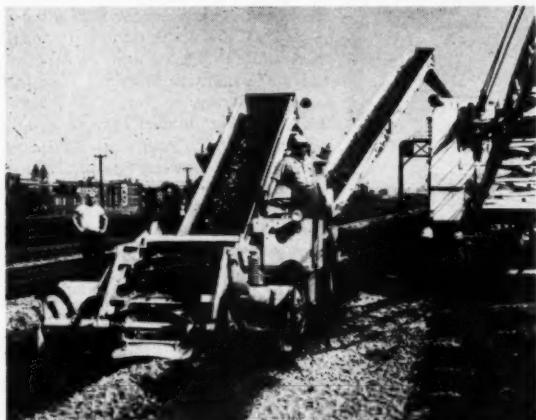


Little wonder the Athey Force-Feed HiLoader is first choice of railroads for cleaning track and reclaiming ballast! It can be used on or off the track or in the yard for picking up debris and dirty ballast and loading this material into gondolas or a trailing unit. Or, outside the yard, it can cast this material into the ditch. Used as a ballast reclaimer, it feeds

the ballast to a shaker screen where dirt and fines are screened out. Cleaned ballast then travels up the trailing elevating conveyor belt for loading and re-use elsewhere or redepositing it on the same tracks.

From moldboard to discharge lip the Athey 125 HiLoader is built for railroad use. Capable of loading 10 to 25 cu. yds. of material per minute, it can cast this material as far as 19' 6". It can load the highest hopper car, or cast over retaining walls up to 15' 7" high. Swiveling conveyor swings freely 55° in either direction. On 12 or 13 foot track centers, it will clean two tracks, including inter-track, in just three passes. One pass cleans full length of tie.

We will be happy to show you — with facts and figures — how the Athey "One Man Clean-up Crew" can save *you* time and money. Write Athey Products Corporation, Railroad Sales Division, 5631 West 65th Street, Chicago 38, Illinois.



Reclaiming ballast from roadbed. Material is conveyed to shaker screen where dirt and fines are screened out. Cleaned ballast then travels up elevating conveyor belt into car for re-use.

Athey

MONEY-SAVING RAILROAD EQUIPMENT

Products (cont'd)

Less downtime with . . .

Harder cutting edges

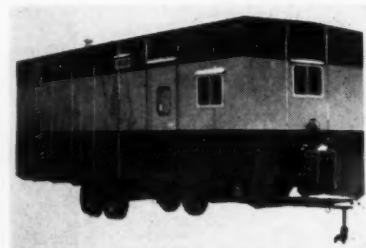
GREATER wearability and strength are claimed for newly developed cutting edges for bulldozers and scrapers. As a result, fewer replacements and less downtime of equipment is required. These cutting edges are said to be hardened by a special "Hi-Electro" process for obtaining the exact control needed to produce a super-hard case and yet retain a tough and shock-resistant core. Also, the edge's projected area is kept thin enough for good

penetration. *Caterpillar Tractor Co., Dept. RTS, Peoria, Ill.*

Highway-rail truck for . . .

Rail detector car

USING the Hy-Rail Model A35 unit as the basic vehicle, a special body has been added to adapt it to rail-flaw detection service. The vehicle has been fitted with a full reverse to give equal speeds in both directions. Railroads are to install their own ultrasonic rail-testing equipment in the car. The result, it is claimed, is a compact and flexible unit for this service. *Fairmont Railway Motors, Inc., Dept. RTS, Fairmont, Minn.*



Longer, self-contained . . .

Trailer camp cars

A NEW SERIES of mobile trailer-type camp cars in 28-ft lengths has been added to the Morrison line. These are available in various combinations and floor plans. A few of the combinations include a 4-man unit, a 5-man unit, both of which are self-contained with all facilities for complete living, an 8-man dormitory, and a 12-man combination kitchen, dining and recreation unit. Other plans are being projected on the drawing board.

Typical is a 4-man unit. This car may be entered through either a side or an end door. At one end is the sleeping quarters equipped with a double bunk on each side of the center aisle, with drawers below. A reading lamp and a fan are furnished for each bunk. The other end of the unit serves as a living and dining area. In between are a propane-gas stove, oven and broiler, a sink with drawers below it, a flush toilet, a shower, two lavatories, a hot-water heater and four steel lockers. *Morrison Railway Supply Corp., Dept. RTS, P.O. Box 185—Station F, Buffalo 12, N.Y.*

NORTHWESTERN
534-A
SECTION CAR

Torque Converter Delivers Full Power Economically

Full power on demand, under all operating conditions is delivered with maximum efficiency at lowest operating cost and with longer engine life. Automatic clutch transmission with torque actuated driven unit transmits balanced drive and automatically multiplies engine torque as power demand increases. This positive, mechanical torque converter provides stepless speed control through a simple, trouble free mechanism that requires no lubrication and practically no maintenance.

See this NEW NORTHWESTERN Section Car No. 534-A in Booths 43N and 44N at the N.R.A.A. Show or write for descriptive Bulletin No. 75734A.

Always Specify **NORTHWESTERN**

NORTHWESTERN Motor Company
MANUFACTURERS OF MAINTENANCE OF WAY EQUIPMENT
Factory and General Offices: Eau Claire, Wisconsin, U. S. A.



unloads
ribbon rail
inch by
inch ...



Motorola "Handie-Talkie"® Radios
Speed Maintenance-of-Way Jobs



Available in choice of
43 diversified models.

- Loudspeaker models available
- Transistorized for greater operating efficiency
- Many accessories for extra versatility

Train delays are fewer, more track work gets done when Motorola portable radiophones are used in maintenance-of-way operations. You benefit by regular train schedules through work areas, lower per diem costs, and better all 'round operating efficiency.

with Motorola 2-way radio

Unloading ribbon rail calls for work train movements of four to six inches at a time, in order to spot the load for exact unloading. This painstaking job calls for continuous and dependable communications between the "anchor" car and the engine up front. Southern Pacific solves the problem and speeds the work with Motorola "Handie-Talkie" portable radios.

Laying rail is just one of the many ways Motorola radio helps maintenance-of-way operations for the Southern Pacific. In the Sacramento and Shasta Divisions, several on-track tie tampers and cranes have been radio equipped. The flagman on the job is equipped with a portable radio. The result: the foreman and the flagman are in continuous voice communication . . . off-track time for tie tamper gangs is minimized . . . train delays are reduced.

Motorola radio can help you in your maintenance-of-way operations too. Ask the Motorola railroad radio specialist serving you to help you increase the efficiency of your equipment and work crews with 2-way radio. Write today.

See this radio equipment at the National Railway Appliances Association Exhibition, March 10-13



MOTOROLA RAILROAD RADIO

Motorola Communications & Electronics, Inc., A Subsidiary of Motorola Inc., 4501 Augusta Blvd., Chicago 51, Illinois

Hot or Cold weather...

WISCONSIN- POWERED equipment

delivers
**full-time
POWER**



Built by Fairmont Railway Motors, Inc.,
Fairmont, Minnesota.

Built by Jackson Vibrators, Inc.,
Ludington, Michigan.

All-weather work-ability . . . another of the many reasons why Wisconsin Heavy-Duty Air-Cooled Engines are *first choice* in the railway maintenance field, 3 to 56 hp. Think of the advantages AIR COOLING offers you: There's nothing to freeze in *cold* weather . . . no radiator dry-ups in *hot* weather. And Wisconsin Engines eliminate up to 26 separate parts normally used on water-cooled engines. One simple casting, a part of the flywheel itself, provides continuous, correct cooling.

Additionally, Wisconsin Engines offer you the advantages of basic load-holding high torque, rugged, built-for-punishment features. These include thrust-absorbing tapered roller bearings at both ends of crankshaft and easily-serviced OUTSIDE magneto. All good reasons why Wisconsin Engines *can* and *do* operate day after day, month after month, far from service shop facilities.

Write for bulletin S-223 describing all single-cylinder, 2-cylinder and V-type 4-cylinder models.



WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN



SIMPLEX JACKS

First Choice for
Railroad Use!



BRIDGE JACK 25-TON CAPACITY

The No. A2515B (illustrated) has an Aluminum Housing, weighs only 40 lbs. It has 9" lift, which eliminates re-setting. Also Journal Jacks and Standard Speed Jacks—15 to 50 tons.



TRACK JACKS (Trip Type)

Malleable or aluminum housings. Large grooved toe areas. Thumb guards and trips on both sides. 12 models.



HYDRAULIC JACKS

Capacities of 3-150 tons, 8 models. Also self-contained and remote controlled hydraulic rams and pullers.

OTHER SIMPLEX RAILROAD JACKS

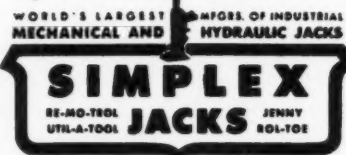
- Tie Removers and Replacers
- Tie Spacers
- Cable Reel Jacks
- Pole-Pulling Jacks
- Pipe Pushers
- Push-Pull Jacks
- Ratchet Lowering Empty Car and Bridge Jacks
- Jack Supports
- Rail Dollies

• Write for Details in Railroad Bulletin

RAIL EXPANDERS

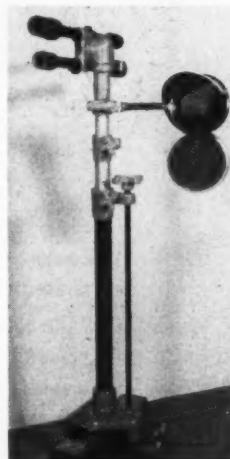
Permit crossing and switch lining, rail spreading and pulling without service interruption.

TEMPLETON, KENLY & CO.
2543 Gardner Road
Broadview, Illinois



**Accurate, rugged,
and foolproof . . .**

The New Model HL Track Lining Scope



The top telescope looks forward—the lower one, factory-set in precise parallel, looks backward. Vertical cross-hair in each cuts gauge edge of rail when telescopes are tilted. There is no way to go wrong after Model HL is leveled (with the convenient knee-high control).

Tough, heat-treated cast aluminum construction; weight 9 lbs. Twin 6-power achromatic telescopes, adjustable for individual vision. Raises to 5' 4" high on 6" rail. Sturdy Carrying Case furnished. Write for Circular No. 111.

The BRICE HAYES Co.,
6710 Northwest Highway,
Chicago 31, Illinois

How Armco Steel Buildings meet the Maine Central's need for low-cost, efficient facilities

A SIZE TO FIT THE JOB

More than 5,000 *standard* Armco Building sizes make it easy to get the exact building needed.

FAST ERECTION

Pre-engineered Armco Steel Buildings save weeks, even months in construction time and labor costs.

LOW MAINTENANCE

All-steel construction means there is nothing to crack, warp or rot. And steel is noncombustible.

DESIGNED FOR THE FUTURE

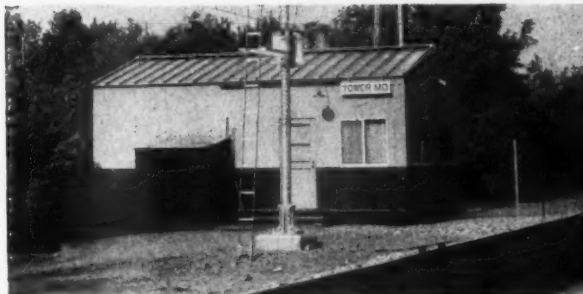
Armco Buildings can be easily extended, re-arranged or even moved to another location without loss of material.

The use of Armco Steel Buildings by the Maine Central Railroad is typical of more than 100 American railroads. These factory-engineered steel structures provide the ideal solution to almost any building problem.

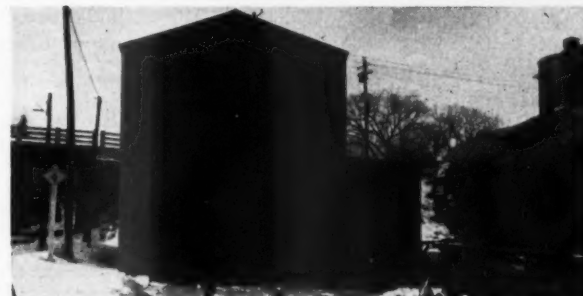
Armco Drainage & Metal Products, Inc., 3168 Curtis St., Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.



This 40' x 120' Armco Building with 10' x 120' lean-to is used by the Maine Central as a mail sorting building at Portland, Maine.



Here's a 16' x 26' Main Central traffic control building at Hermon, Maine. Buildings like this can go up in hours.



A 20' x 64' Armco Building with lean-to is used for Main Central engine house at Calais, Maine.



Our free catalog describing Armco Steel Buildings will give you plenty of money-saving ideas for your railroad. Write for it today, or just mail the coupon.

ARMCO DRAINAGE & METAL PRODUCTS, INC.

3168 Curtis Street, Middletown, Ohio

Send me Catalog 11856 on Armco Steel Buildings for railroads.

NAME _____

RAILROAD _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

ARMCO STEEL BUILDINGS



What's the answer?

To be answered in June

Do you have an answer to any of the questions listed below? If so, send it in. Payment—based upon substance and length—will be made for each published answer. If you'd prefer that your name be withheld, we'll gladly comply.

DEADLINE: April 30

- ▶ 1. Other than by grinding and building up by welding, what measures can be taken to get additional service life from railroad grade crossings?
- ▶ 2. Are there advantages in installing extra-long crossties at bridge approaches? How long? How many? Does single track and double track make a difference?
- ▶ 3. What practical degree of accuracy can be obtained in loading track materials, such as joint bars, tie plates and rail anchors (both new and second hand), by weight instead of by number count? Is this method enough when distributing material for out-of-face work? For inventory? Stock piling?
- ▶ 4. What covering materials can be used to protect newly placed concrete and brick masonry in summer? In winter? What are the relative advantages of each?
- ▶ 5. Is the use of ear plugs beneficial to employees working in noisy surroundings? Or does their use create a greater hazard? Explain.

Send answers to:

What's the Answer Editor
Railway Track & Structures
79 West Monroe Street
Chicago 3, Illinois

Do you have a question you'd like to have answered in these columns? If so, please send it in.

Tools for production tampers

Generally, what tools (wrenches, etc.) should be carried in the tool box on a production tamper to facilitate on-the-spot repairs to the machine? What spare parts should be carried? Explain.

Consider type of machine

By W. E. KROPP
 Supervisor M/W Equipment
 Lehigh Valley
 Bethlehem, Pa.

There are several such machines in use, each having distinctive characteristics, such as electric-vibratory, pneumatic, hydraulic, and direct-mechanical-driven tamping tools. Obviously it will be necessary to consider the type of production tamper in use on one's own line, and furnish a few special adapted specifically to such machines.

However, in general, each machine should be equipped with tools as follows, or their equivalent:

- 1 - set open-end wrenches— $\frac{3}{8}$ in to 1 $\frac{1}{4}$ in
- 1 - set box wrenches— $\frac{1}{4}$ in to 1 in
- 1 - 8-in Adjustable wrench
- 1 - 12 in Adjustable wrench
- 1 - speed indicator
- 1 - 6-in screw driver
- 1 - 12-in screw driver
- 1 - 8-in pliers
- 1 - ball-peen hammer
- 1 - hydraulic-pressure gage or air-pressure gage

It also will be necessary to consider spare parts to be carried with each basic type unit separately. Requirements necessarily differ because of the distinctions as to type and whether gasoline or diesel powered.

In general, spare parts for all units should include:

- Engine-fan belts
- Spark plugs
- Ignition points-condenser
- Lubricating-oil filter element
- Propelling chain
- Chain-connecting links
- Chain-connecting tools
- Hydraulic-ram packing
- Diesel fuel-oil-filter element
- Containers for lubricating oil
- Indexer chain
- Pneumatic cylinder packing
- Assortment bolts and nuts (common and special)
- 1 Set or more—tamping tools

More specifically, parts should include:

For electric tampers:

- Spare tamping motors
- Motor-cable assemblies
- Motor-support belts
- Generator-drive belts

For mechanically driven unit:

- Reversing-clutch assembly
- Seals for pneumatic cylinders
- Locking screws for tamping tools

For pneumatic tampers:

- Complete tamping cylinder assembly
- Air control-valve assembly
- Packing for air cylinders

For hydraulic tamper:

- Complete tamping cylinder assembly
- Hydraulic control assembly
- Hydraulic cylinder seals

It is assumed that regulations require roadway mechanics to do all major repair work and that the operators make only minor repairs. Hence, the roadway mechanic would procure necessary parts from a system storehouse. In most cases he would have them in his truck upon arriving on the job.

It is impossible to set down specific rules that would apply to all railroads. These recommendations can serve as a guide only.

Carries spare units

By L. L. SHERMAN
 Supervisor of Work Equipment
 Northern Pacific
 St. Paul, Minn.

We carry one set of box-end wrenches plus two screw drivers. We carry three spare tamping motors with our Multiple Tampers and one spare tamping motor with our Main-tainers. Both units are furnished with a pinion shaft and pinion gear for the hydraulic indexer assembly. As soon as this is used, another spare set is ordered.

All units carry spare belts for the tamping units, as well as belts for the generator and pump drive. All

SIMAZIN^{*} 50W

pre-emergence residual herbicide

with
7 SAFETY FEATURES

saves railroads time, labor, materials and money

New Geigy Simazin 50W herbicide with the 7 safety features makes possible preventive weed control for railroads—with resultant savings in time, labor, and money.

Simazin 50W herbicide kills both grassy and broad-leaf weeds before or shortly after emergence. Its effective residual action gives railroads long-time weed control. A single pre-emergence application of Simazin 50W at the rate of 10 lbs. per acre will prevent growth of most annual weeds, both broadleaf or grassy varieties, for an entire season. Higher dosages are usually required to kill the more resistant perennials.

In addition to its effectiveness as a herbicide, Simazin 50W's 7 safety features are important to railroad maintenance men. Safe to humans and animals, Simazin 50W is also non-corrosive and non-abrasive, and will not damage spraying equipment, rails, rolling stock, fences or other metal objects. Simazin 50W is non-flammable; presents no conductivity problem; leaves no greasy residue on rails. Because of its non-lateral-leaching qualities, Simazin 50W's effectiveness can be kept within controlled bounds.

This year, plan to take care of your weed-control problem early—*before growth appears*. Remember, Geigy Technical Service is always available to assist you. Write for the name of your nearest distributor. Address Department RS-38.

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- 1 SAFETY TO HUMANS AND ANIMALS. Extremely low toxicity.
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- 4 SAFETY NEAR ELECTRICITY. Relatively low electrical conductivity.
- 5 SAFETY FROM DRIFT HAZARD. Works thru roots—little or no toxicity to foliage.
- 6 SAFETY FROM FIRE HAZARD. Non-flammable.
- 7 SAFETY FOR USE ON VALUABLE LAND. Not a permanent soil sterilant.



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... wider work range!



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More money is saved by BANTAM's unlimited job range. Just one low BANTAM investment with fast-change attachments equips you for all lifting, loading, digging, steel erection and handling jobs—along the right of way, on-track or off!

BANTAM's record low operation and maintenance costs make it the most rewarding rig of its type you can own. Choice of 3 carrier models with up to 8-ton capacity; also BANTAM self-propelled and crawler models.



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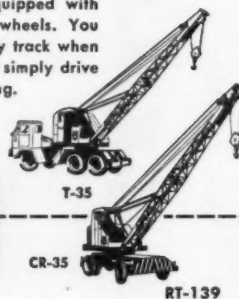
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What's the answer? (cont'd)

tampers are furnished with spare tamping-blade assemblies, both 3 in and 5 in.

Surfacing for overhead bridges

What paving materials are best suited for protecting wood plank decks on overhead highway bridges? What methods can be used to anchor the paving to the plank deck? Explain.

Use several types

By A. R. HARRIS
Engineer of Bridges
Chicago & North Western
Chicago, Ill.

In our experience we have used the following types of wearing surface on top of the wood subfloor planks of highway bridges:

(1) Reinforced-concrete pavement, not less than 5 in thick, laid on plank subfloor without any special fastenings.

This type of construction is satisfactory. But actually it would be more economical to omit the thick subfloor plank and make the reinforced-concrete pavement not less than 6¼ in thick. At one bridge we removed the old subfloor planks and placed 1-in creosoted planking transverse to the stringers as a form for the pavement. This planking was left in place permanently. However, this was a considerable saving over the use of subfloor plank 6 in thick with concrete paving on top of the planks. It was also more economical than using standard box forms and later removing them.

(2) Mineral-surface asphalt planks, not less than 2 in thick, nailed to the subfloor planks with galvanized nails not less than 4 in long.

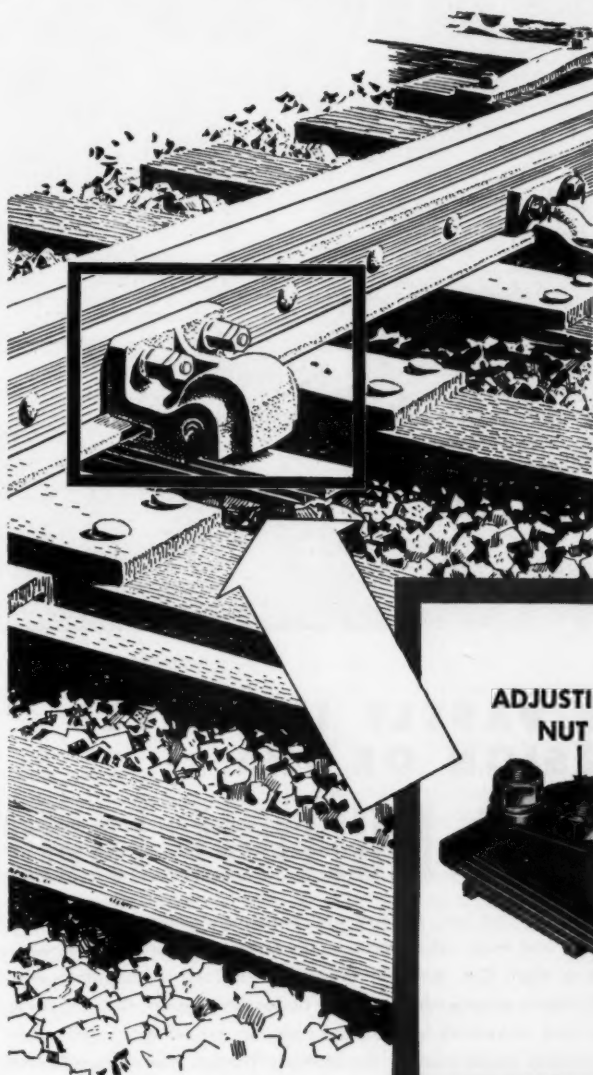
This type of construction has given much better surface than plain bituminous pavement rolled on to the planking. Our experience has been that materials rolled on tend to corrugate and give a very rough surface.

(3) Steel-grid decking, not less
(Continued on page 93)

UNION Roller Bearings give —

Increased reliability of switch operation
under adverse conditions

Easier operation under all conditions

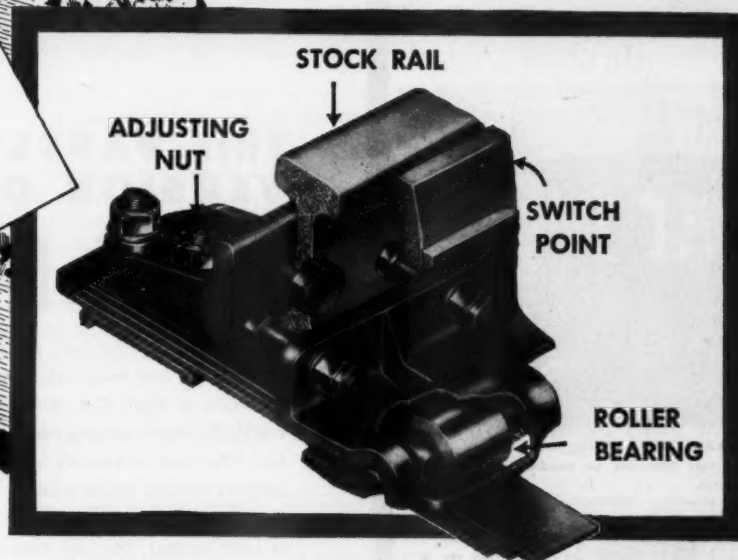


The purpose of applying roller bearings to switches is to reduce friction during operation. With heavier rail and longer turnouts, this has become an important factor.

UNION Style R Roller Bearings . . .

- Reduce force required to move switch points and cut down on power consumption for power-operated switches.
- Reduce wear on connections and operating mechanism.
- Improve spring switch and mechanical facing point lock performance.
- Cut down maintenance costs . . . less cleaning and oiling required.
- Save money by preventing train delays.

UNION Roller Bearings are easy to install and adjust . . . do not interfere with tie tamping. Ask any UNION district office for complete information.



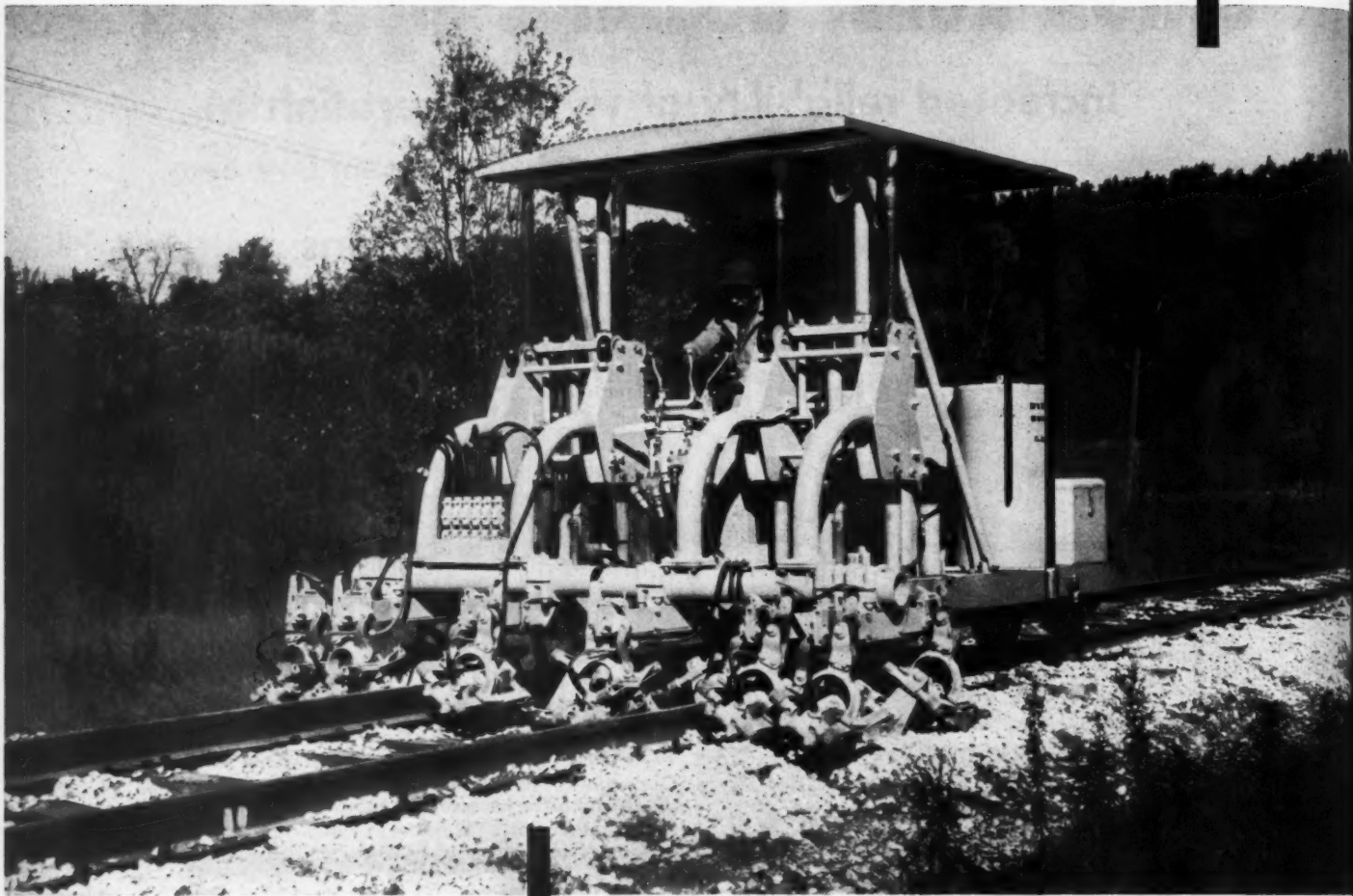
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SPLIT WORKHEAD permits tamping more track in leads and turn-outs than can be handled by single crosshead machines.



JACKSON MANUALLY GUIDED TIE TAMPERS These machines and the power plants from which they are operated, are exceedingly efficient; widely used by small gangs in low lifts and smoothing work, cross-overs and spots the on-track machines can not reach.

This VASTLY IMPROVED VERSION OF THE JACKSON MULTIPLE TAMPER

Better than ever for fast, uniform and economical ballast placement on construction and major rehabilitation jobs or new ballast insertions where the raise is high. O.K. also for regular out-of-face maintenance when track lift equals or exceeds maximum ballast dimension. O.K. again for low lifts and smoothing in graded or pit-run gravel or "small grain" ballasts readily penetrated by the Multiple Tamper. For the small road, the contractor, and the class 1 road having high lift programs, or work in light ballast, this low-cost, versatile, medium power tamper is ideal. Split Crosshead and faster indexing from tie to tie are some of its major improvements. Let us give you the complete facts.

Acquirement plans to suit your needs.

See both the **JACKSON MULTIPLE AND TRACK MAINTAINER**
at the **N.R.A.A. SHOW — the Coliseum, Chicago**
BOOTHS 119 to 121, 138 to 141

JACKSON VIBRATORS, INC.
LUDINGTON, MICHIGAN

What's the answer? (cont'd)

than 1 in thick, fastened to the sub-floor planks with galvanized drive spikes and filled with bituminous concrete.

This type of construction is satisfactory but more expensive than the other types.

Older types of construction, such as creosoted-wood blocks and paving bricks laid on timber planks, are not considered satisfactory for present day traffic.

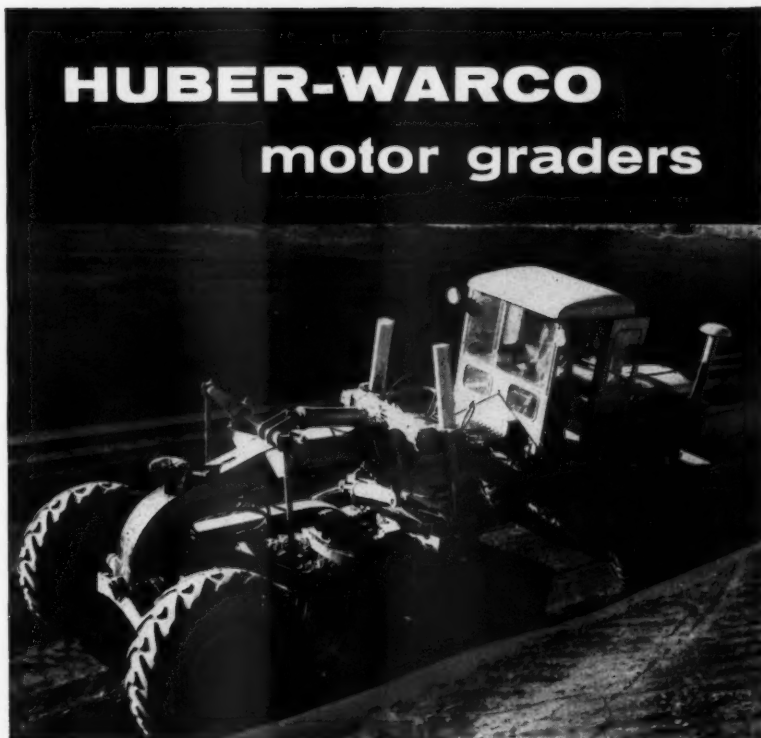
Get good decks

By W. D. KEENEY
District Engineer
Wood Preservers Institute
Chicago, Ill.

With the exception of pressure-treated black gum, most species of timber require protection from mechanical wear under wheel loads. Black gum has established an outstanding service record as a wearing surface for bridge decks, highway grade crossings and docks. Properly constructed bridge floors of pressure-treated timber will last for many years even under heavy highway traffic. They require only routine maintenance if the treated timber is protected from abrasion by a surface covering which experience has shown to be satisfactory for the density of traffic passing over the bridge.

Several types of wearing surfaces are in common use. The choice of the type or material usually depends on the number of vehicles passing over the structure. On fairly heavy traveled country roads, a 3-in carpet of the same oil-mixed gravel with which the road is surfaced has given excellent service on many timber bridges built by western and mid-western highway departments. Such mats conform to the road pavement and are maintained by the regular maintenance patrols.

Timber decks on urban or more heavily traveled highways are covered frequently with thin pavements of asphalt or bituminous mix, or by asphalt planks laid either diagonally or normal to traffic. In a few cases where asphalt coverings are specified on creosoted timber decks, an intervening layer of salt-treated plank or an impervious mem-



for right-of-way maintenance

The Huber-Warco 5D-190 MOTOR GRADER is playing an important part in the railroad right-of-way maintenance for some of America's modern railroads. This approach to the use of off the track rubber-mounted equipment means there is no work stoppage . . . trains roll by without delay. The Huber-Warco 5D-190, with a 195 h.p. diesel engine, torque converter, tail-shaft governor and power-shift transmission, can handle a bigger volume of work with fewer passes. The cab-controlled blade movement makes bank-sloping easy. The 360° blade rotation permits a back-up pass . . . there's no need to "dead-head" the grader back for another forward pass. There are many other important bonus features of the 5D-190 that makes every grading job more profitable. See your Huber-Warco distributor for more details on the 5D-190 and other torque converter and standard transmission graders ranging from 75 to 195 h.p.

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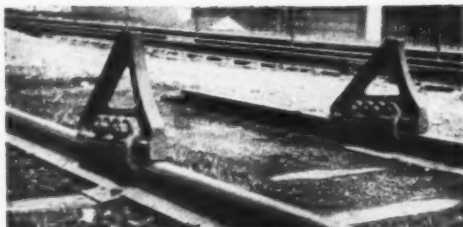
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Q & C Car Stops are made in one size suitable for use on all rail sizes found in yards and side tracks. For proper application bolt the two clamp wedges lightly, and drive the car stop casting with a sledge hammer until it grips the rail head securely. No rail drilling is necessary.

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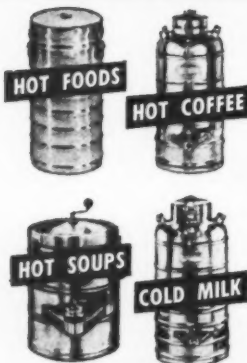
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SYSTEM HAS PROVED ITS WORTH
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AerVoIDs provide . . .
Sanitary Vacuum Insulation -
A positive Health Safeguard!

To-day's "Modern" trend toward centralization of food preparation is a milestone toward Economy, Better Quality and Higher Sanitary Standards.

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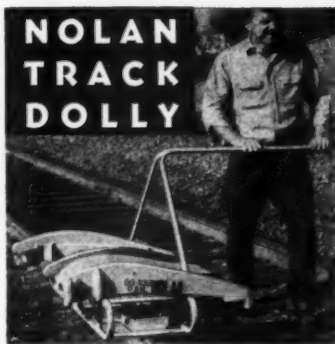
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NOLAN TRACK DOLLY



. . . the fast,
safe, easy
way to
transport
materials

You can get rails, ties, supplies, tools, rerailers, etc., to the job with money-saving speed and efficiency, when you equip your crews with the Nolan Track Dolly.

Built of tubular high-carbon steel. Extremely strong and serviceable. Operator's handle conveniently placed to assure correct balance and full control of heavy loads. Ball bearing cast steel wheels. Convenient spike securely holds dolly in loading position. Deck is heavy mesh expanded steel.

STANDARD DOLLY

Length	Width	Ht. Above Rail	Weight
50 1/2 in.	15 1/2 in.	6 3/4 in.	88 lbs.

INSPECTOR'S DOLLY

Length	Width	Ht. Above Rail	Weight
36 in.	14 in.	6 in.	60 lbs.

NOLAN TOOL AND SUPPLY CAR

2000 lbs. capacity. All-tubular high-carbon steel construction for safe carrying of ties, rails, supplies, etc. Car breaks conveniently in center into two sections for easy handling and transportation. Deck is heavy mesh expanded steel.

Platform size 48" x 45" Ht. above rail 8"
Weight 140 lbs. complete.

Write for complete railway supply catalog.

THE NOLAN COMPANY



166 PENNSYLVANIA ST.,
BOWERSTON, OHIO

What's the answer? (cont'd)

brane is placed over the creosoted deck to prevent contact of the asphalt paving with the creosote. In thousands of successful installations, however, the asphalt mix or asphalt plank is in direct contact with the creosoted deck lumber. Concentrations of creosote in pressure-treated wood that come in contact with the asphalt are too light to cause any disintegration of the asphalt, and an intervening membrane is unnecessary.

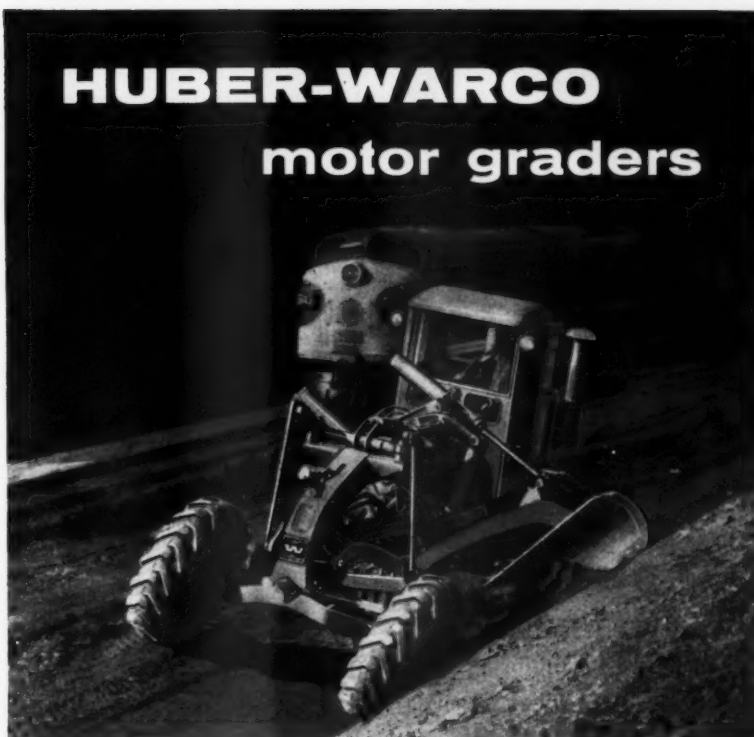
The creosoted laminated timber deck on the Potomac River bridge at Washington, D. C., has been protected by an asphalt surfacing since the present deck was installed 30 years ago. This 2,200-ft bridge, connecting Washington and Virginia, has carried heavily congested automotive traffic for years. It was estimated that traffic increased from 30,000 vehicles per day in 1930 to more than 50,000 in 1953. In 1928, a laminated deck of creosoted timber, consisting of 3-in by 7-in plank laid on edge, replaced a light steel deck that had become unserviceable. The timber is protected from mechanical wear by a 2-in thickness of asphalt laid in contact with the deck. This mat required only minor routine maintenance until 1953, when some small areas of the mat which had cracked or worn thin were renewed.

Asphalt plank has been used on a great many heavily traveled highway bridges and provides a durable surface under traffic when laid properly on rigid floors.

Oil-gravel, asphalt, and bituminous mats develop adequate bond with the subfloor to keep them in place under traffic. Asphalt planks are nailed in place. Recommendations of the manufacturer should be followed in laying the plank.

Composite decks of treated lumber and concrete provide a very durable floor for trestle or short-span construction, and have been used extensively for flooring steel bridges. This floor consists of a solid laminated base of 2-in plank laid on edge, covered with a portland-cement concrete mat 3½ to 4 in thick.

The base and mat are rigidly locked together so the assembly acts as a unit with an effective depth



HUBER-WARCO motor graders

helps keep traffic running on time

Modern railroads have turned to the use of off-the-track, rubber-mounted equipment for right-of-way maintenance. There is no longer a need to hold up trains, or lose important work-crew man hours while track-mounted equipment is moved to a sometimes distant siding. Huber-Warco MOTOR GRADERS fit right into this new approach. While the Huber-Warco grader performs the necessary grading jobs, trains roll by without delay. An outstanding feature of the Huber-Warco GRADERS is the hydraulic cab-controlled blade movement for bank sloping. In less than a minute, and without ever leaving the cab and without manual adjustments, the operator can change the blade from 90° on one side to 90° on the other. This is just one of the many PLUS features. See your Huber-Warco distributor for details on the complete line of torque converter and standard transmission MOTOR GRADERS ranging from 75 to 195 h.p.

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What's the answer? (cont'd)

equivalent to the overall thickness of the two materials. The concrete mat thus becomes not only a wearing surface, but also an effective part of the support. With the usual average base thickness of 5 to 7 in, these slabs are adequate for standard highway loadings for spans up to 25 or 27 ft. Plans of this design for overhead highway bridges, now being prepared by AREA Committee No. 7, have been recommended for inclusion in the AREA Manual.

Construction of the timber floor is fully as important as the selection and placing of mat materials. A mat cannot be maintained satisfactorily if the timber floor deflects excessively under traffic or if planks become loose. A transverse laminated floor, of 2 or 3-in pieces laid on edge and securely spiked together, has a decided advantage over an ordinary plank floor. The laminated floor eliminates the possibility of severe edge loading, wheel loads are distributed over several laminations, and individual strips will not become loose. Ends of the laminated floor strips should be fastened securely at the curb to prevent movement. With rigid, tight decks wearing surfaces remain in good condition indefinitely.

Likes filled grating

By L. P. DREW
Assistant Chief Engineer
Union Pacific
Omaha, Neb.

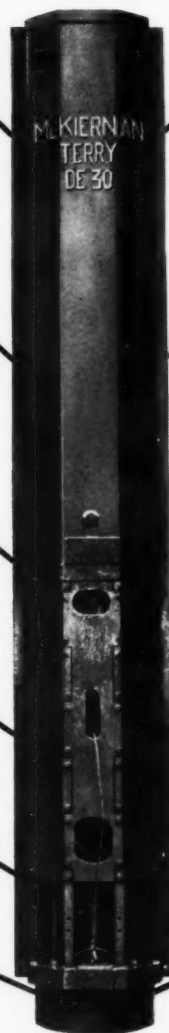
Due to the fact that wooden plank decks on highway bridges are not rigid and are subject to relatively heavy deflections, the only paving material that can be used is one which remains semi-plastic and will work under this excess deflection.

Concrete or any of the rigid-type pavements will soon break up under traffic. Therefore, paving on timber decks is limited to asphaltic and bitulithic mixtures.

In view of the excessive deflection, there is a tendency for the protective paving material to creep or break up under traffic. Therefore, a positive anchorage must be provided. One of the best types which we have found for this purpose is known as Hex-steel grating, which is manufactured in a number of weights and thick-

DIESEL PILE HAMMERS

are self contained — no steam — no air — a small quantity of fuel oil for all-day operation — high driving rate — simple design — easy to maintain — write for Bulletin 67R.



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After flood damage on an Eastern line, 7 Koehring RailAids salvaged freight, speeded track clean-up and repairs to re-establish main-line service. Where track was blocked, the RailAids detoured along high ground — traveled, worked off-car.



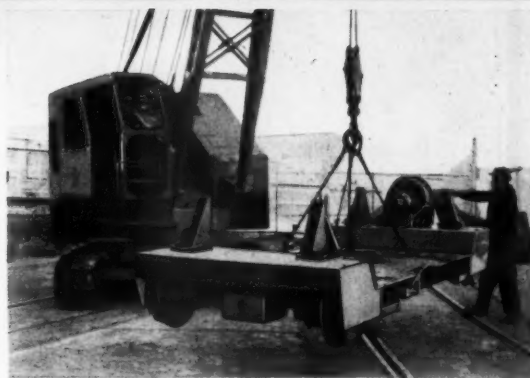
ON-TRACK ... OFF-TRACK in less than 10 minutes

Wherever there's excavating, lifting, or material-handling to be done, Koehring RailAid takes to the rails — travels on-track from one work-section to the next at speeds up to 20 m.p.h. It's self-propelled, powers its own rail car — does 2 to 3 times the work of other excavators or cranes that have to crawl or be hauled from job to job.

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As a crane, this Koehring 205 safely lifts 6.9 tons from the car — 8.9 tons on ground. Converts to clamshell, dragline, ½-yard shovel or hoe — cleans ditches, widens banks, stockpiles coal or ballast, loads or unloads cars, repairs trestles, lays rails, does pile-driving. Want all the facts? Send coupon today.

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nesses. This grating material is anchored to the wood planks with lag screws and clips. The paving materials are then applied, filling all of the voids and extending to about $\frac{3}{8}$ in above the top of the grating. Best results are obtained by applying an additional seal coat, $\frac{1}{4}$ in to $\frac{1}{2}$ in thick, every two or three years to compensate for the wear and to avoid having the steel being exposed.

Reusing spikes when laying rail

When laying rail, is it economical to reuse those track spikes which appear to be serviceable? What are the disadvantages of this practice? Explain.

Use new spikes

By W. W. STEWART
Track Supervisor
Jersey Central Lines
Ashley, Pa.

It is often true that section foremen, or extra-gang foreman, assigned

to laying rail on main lines or high-speed tracks, pay little or no attention to the used spikes that are to be redriven.

There are two disadvantages in reusing track spikes:

(1) Spikes pulled by claw bars are often bent and stretched from normal shape. Thus, when redriven by a spike maul, along the outside of a rail, they have a tendency to draw the shoulder of a tie plate away from the base of rail, causing slightly wide gage. Contrarywise, spikes driven along the inside of a rail have a tendency to draw the shoulder of a tie plate inward to the base of rail, causing tight gage. Also, when driving spikes with a spiking machine or air guns, the progress of these machines is slowed up by bent spikes.

(2) Spikes that have been in use for any length of time are worn at the throat, and permit motion in both the rail and the plate.

It is my contention that, whenever possible, new spikes should be used in such operations. Old spikes can be used for hold-down spikes, or on tracks in yards or sidings.

It is and isn't

By ROADMASTER

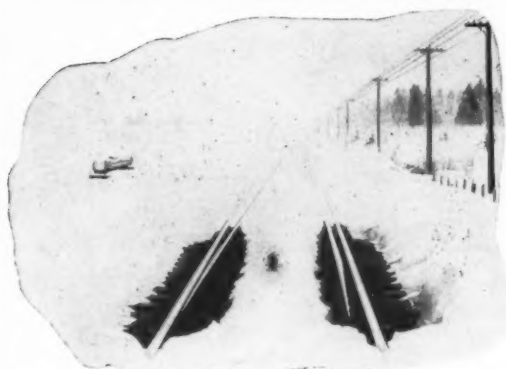
The answer to this question is "yes" and "no." It depends upon the amount of rail you are laying.

When transposing rail on curves, replacing rail bent in a derailment, or laying a small amount of rail with section forces or a district maintenance gang, it is economical to reuse the spikes. The men are there, are not going any place else for a while and have the time to straighten the ones bent while being pulled.

Badly corroded spikes and those that are throat-cut should not be reused, however. They do not have the proper dimensions to fill the tie-plate spike holes to do the job they are supposed to do—hold rail to proper gage.

On the other hand, it is not economical to reuse even the better spikes when laying rail out-of-face. In this case, you have a larger number of

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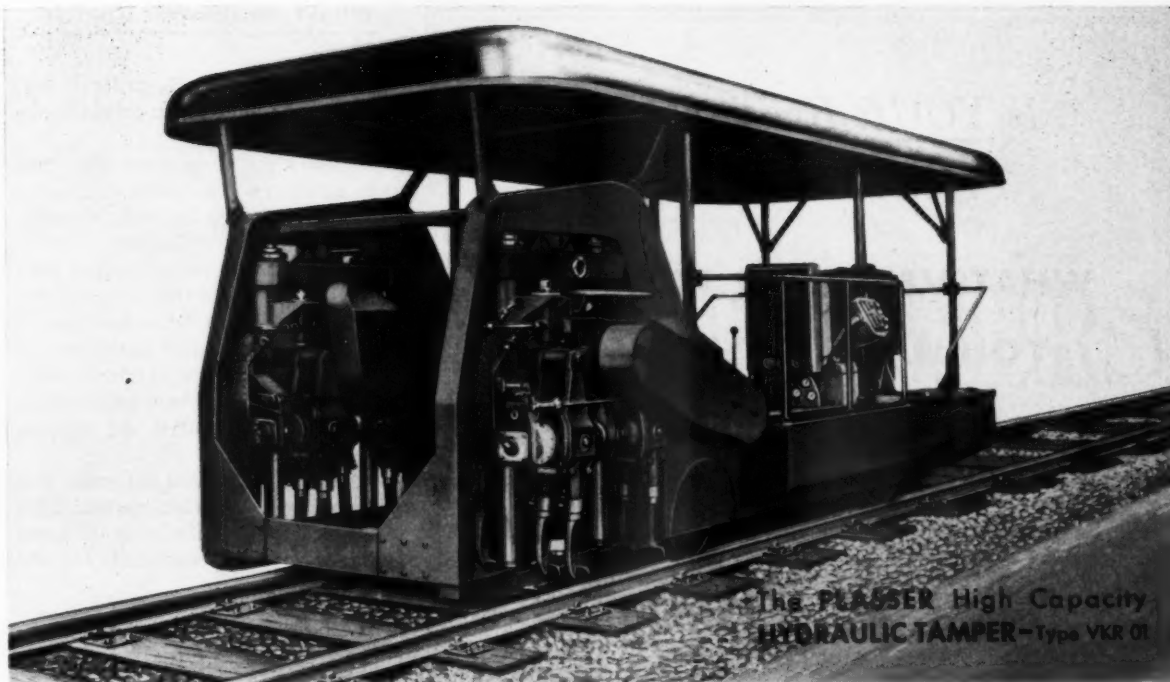
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5. Finest equipment—A fleet of modern, specially designed tank trucks assures you dependable delivery.
6. Ample Supply—Suburban Propane receives over 1,000 tank cars of propane a month.
7. Low Investment—LP-Gas storage tanks are loaned to railroads.

For complete information about Suburban Propane Gas Service for switch heating or for any other use, write to Dept. RW3, Suburban Propane Gas Corporation, Box 206, Whippany, N. J.

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GENERAL OFFICES WHIPPANY, N. J.

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The PLASSER High Capacity
HYDRAULIC TAMPER—Type VKR 01

HOW ONE MAN CAN TAMP 1100 FEET IN ONE HOUR!

One chief engineer writes this: "... Three of the Plasser machines have worked generally in granite ballast and have had a maximum production rate ranging from 900 ft. to 1,100 ft. per hour, with the

maximum surfaced in one day of 6,240 ft. ... Since we are primarily a single track line, our production is largely dependant on the on-track time we have available ..."

8

ADVANTAGES

- 1 Economical one-man-operation.
- 2 Hydraulic pneumatic controls eliminate manual effort.
- 3 Uniform ballasting guaranteed by pre-set pressure.
- 4 Automatically increase tamping pressure at joints and high rails at curves.
- 5 Adjustment for deep or ordinary tamping may be made while running.
- 6 Rubber-cushioned axle suspension minimizes vibration.
- 7 Lowest maintenance cost of any tamping machine.
- 8 Pneumatic high-pressure penetration of tamping heads ideal for fouled or cemented ballast.



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MARCH, 1958

99

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specially designed to do the job

Chemical control of brush—for line and roadside clearance and other purposes—has come a long way in a few short years. Weedone Brush Killers, originated by the American Chemical Paint Company, were the pioneers in chemical brush killing. Now immensely diversified, these fine products are still the leaders in the field. Today there is a Weedone Brush Killer specifically formulated for practically every need. Each is selective, effective, completely reliable.

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- economical to use

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Agricultural Chemicals Division

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Originators of 2,4-D and 2,4,5-T Weed and Brush Killers



What's the answer? (cont'd)

men working, a gang properly balanced, and equipped to get maximum production.

Even if you employ two extra men to straighten old spikes for reuse, they cannot keep up with the spike-driving machine's progress. The result would be that you either slow down your gang or else you get a poor spiking job. Also, the spikes must be straight and in good condition for driving by a machine. Otherwise you end up with a lot of bent spikes which later have to be pulled and replaced with new spikes.

This practice does not mean that the reusable spikes are wasted. They are picked up by the scrap train and are salvaged economically at the scrap-sorting yard.

Water for steam generators

Is water which meets the minimum specifications for use as a diesel-engine coolant satisfactory for use in flash-type steam generators? Are there additional chemical properties which should be specified? Explain.

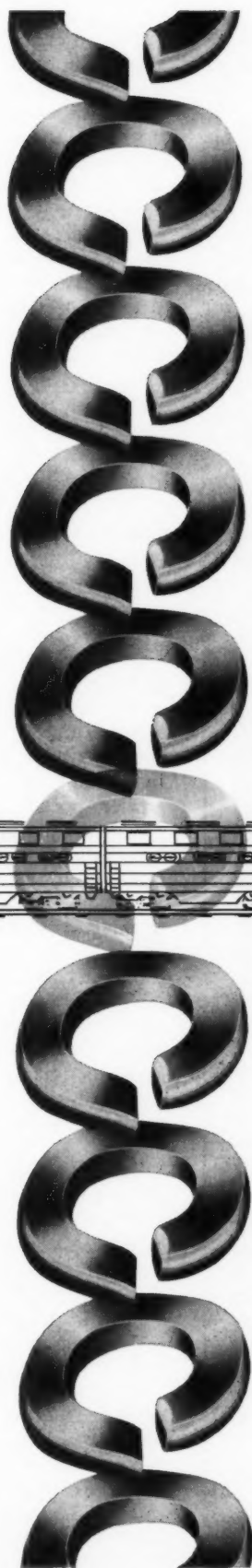
Do not interchange

By H. M. SCHUDLICH
Engineer of Water Service
Northern Pacific
St. Paul, Minn.

In an emergency and where the cooling water has not already been pretreated with either borate-nitrate, chromate, or other inhibitors, it would be possible to use the water for steam-generator supply. This is taking into consideration that the untreated cooling water is post-treated for use with an alkaline chemical and suitable organic materials, along with sufficient phosphate.

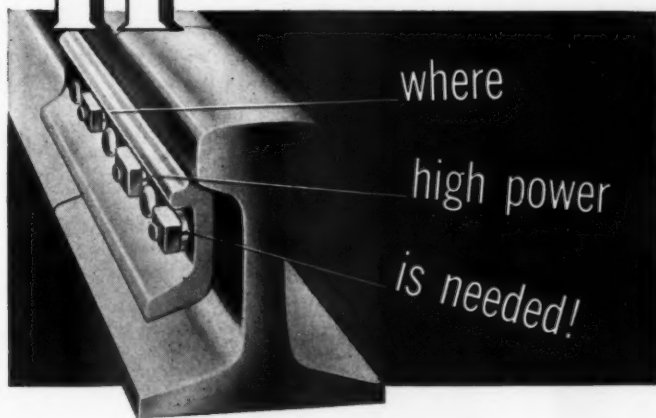
Ordinarily, water for cooling systems and steam generators is treated to two different standards.

Cooling-system waters should be low in hardness, preferably less than five gpg; low in chlorides, silica, sul-



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HIPOWERS



—install the spring washers that keep rail ends, joints, frogs... tighter, longer!

National Spring Washers — with reserve power — withstand the constant stresses and strains produced by heaviest traffic... absorb shocks and maintain bolt tension constantly.



Serving Industry Since 1886

**THE NATIONAL
LOCK WASHER COMPANY**
NEWARK 5, NEW JERSEY, U. S. A.

A Complete Line of Railway Spring Washers

What's the answer? (cont'd)

fates, and almost neutral. The addition of the correct amount of corrosion inhibitor with the proper buffers raises the pH of the cooling water to the optimum point. Since the temperature of the water ranges between 160 deg F and 190 deg F in the cooling system, scale deposition from the calcium and magnesium salts present does not offer any problem. For convenience and proper proportioning

of the chemicals, the inhibitors are usually premixed, or automatic-proportioning chemical feeder devices are used.

Steam-generator water is preferably zeolite softened, demineralized or dealkalized. It is then post-treated with a suitable alkalizing compound to raise the pH. This is usually controlled by excess alkalinity which, when it is 50 per cent above the hardness, results in a boiler water that will not deposit scale, especially if part of the alkalinity consists of phosphate.

Processed organic materials assist in minimizing corrosion and fluidize any sludge which may be present due to a small amount of residual hardness. The lower the hardness in the feedwater, the less sludge there is to handle in the steam generator. At approximately 400-deg F operating temperature, improperly treated sludge can cause trouble.

Since the two types of water are treated differently, there should be no interchange in their use. If the water supply for both end uses is the same, then different types of treatment, as mentioned above, should be applied.

TIE PLATE LOCK SPIKES ... GAGE LOCK SPIKES

Hold Gage—Extend Tie Life

Reduce Maintenance



Tie Plate
Lock Spike



Gage Lock Spikes in Track



Gage Lock
Spike

TIE PLATE LOCK SPIKES hold tie plates firmly in place on cross-ties and bridge timbers. They are quickly and easily driven or removed with standard track tools. Driven to refusal, the spread shank is compressed by the walls of the hole. Plates are held against movement under spring pressure. Play between spike and hole is eliminated—gage is held and plate cutting is overcome.

The GAGE LOCK SPIKE is a rail spike, as well as a plate fastening, for use on tangent track and light curves where lateral thrust can be overcome with only two spikes at each plate rather than four cut spikes. It possesses the same features and advantages as the Tie Plate Lock Spike. The Gage spike is offset at the tie plate surface to avoid thrust and wear from the edge of the rail base. The use of Gage spikes saves up to 13,000 spikes per mile and potential damage to the tie from spiking and splitting is drastically reduced.

BERNUTH, LEMBCKE CO., INC.

420 Lexington Avenue, New York 17, N. Y.

It is scale forming

By C. L. CROCKETT
Chief Chemist
Norfolk & Western
Roanoke, Va.

My answer to the first part of the question is "No." My reason for this is that the specifications for cooling water permit as much as 10 grains per gallon of hardness compounds. In a flash-type steam generator the greater portion of this hardness would precipitate, forming scale accumulation in the tubes. This would prove to be extremely detrimental and would require frequent acid cleaning.

For the best results, zeolite-softened water should be used and, if the zeolite softener is properly maintained and regenerated, the hardness of the effluent water should be less than one grain. This soft water should be treated to raise the alkalinity sufficiently to minimize corrosion.

To accomplish this the pH value of the water should be maintained at not less than 9.0. This is usually done by the application of a sodium-phosphate type of treatment. This is available in briquettes that can be easily applied to the water by means of a small feeder as it goes to the generator.

I realize that, in many instances, the water used in the steam generators on diesel engines is not softened and treated in accordance with the above specifications. But, in such cases, the results obtained are not nearly as satisfactory as with the better quality water.

NCG*Announces...*

**full acquisition of American
manufacturing rights to
"System Schlatter" continuous
rail electric flash welder**

NCG Rail Welding System makes possible...

- ★ Increased continuous rail production: completed weld every four minutes including removal of burr and grinding head and base smooth.
- ★ Higher quality welds for longer wear requiring less track maintenance: perfect hairline welds with restricted heat transmission along rail—annealing or normalizing eliminated.

NCG Rail Welding System is automatic...

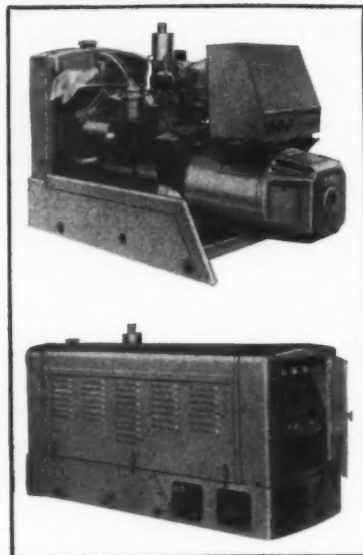
- ★ One man controls entire operation: positions and prepares rail for welding including electrode grinding—makes weld—removes burrs—grinds and moves welded rail to flat cars.
- ★ Releases men for required work elsewhere.

National Cylinder Gas, a pioneer in welding, is proud to introduce this new and improved welding system to American Railroads. Continuous welded rail is proving to be an important advancement in modern railroads, and the NCG "System Schlatter" welder makes it even more practical and economical to you. First complete American made unit available May. Write Rail Welding department for particulars.

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NATIONAL CYLINDER GAS COMPANY
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Onan develops new low-cost standby plants

Water-cooled units in 10 and 15 KW sizes meet rigid requirements

A new series of water-cooled electric plants makes Onan reliability and advantages available at significantly lower prices. The new units are powered by the same rugged, industrial-type engines used on more expensive plants. They have close inherent voltage regulation, operate on either gas or gasoline, and are equipped with all necessary controls and instruments, and high water temperature cut-off. Standard Onan accessories are available.

The Onan revolving armature, all-climate generator is direct-connected and self-aligning. All standard voltages are available. Both sizes are offered unboxed or with handsome weatherproof steel housings.

Write for specifications



D.W. ONAN & SONS INC.

3700A University Avenue S.E.
Minneapolis 14, Minnesota

Biographical briefs (cont'd)

(Continued from page 10)

where he was appointed acting division engineer in July 1949. In November 1949 he returned to the position of assistant engineer at Winnipeg, but was named division engineer at Kamloops, B. C. in 1950. In May 1953 he was named assistant district engineer at Vancouver, B. C., and the following year he was promoted to district engineer there. In July 1957 he was transferred to Montreal where he remained until his recent promotion.

George P. Hayes, Jr., 55, who was recently promoted to engineer of construction of the Richmond, Fredericksburg & Potomac at Richmond, Va. (*RT&S*, Jan., p. 10), graduated from Drexel Institute and entered railroad service on the Pennsylvania in the office of the chief engineer at Philadelphia in October 1925. From August 1940 until October 1943 he served as assistant supervisor of buildings and supervisor of bridges. After serving with the 717th Railway Operating Battalion in the European theatre he returned to the PRR in February 1946 as supervisor of structures at Canton, Ohio. In December 1950 he again joined the U. S. Army as a lieutenant colonel in the office of the chief of transportation at Washington, D. C. In April 1956 he returned to railroad service with the Richmond, Fredericksburg & Potomac as assistant engineer—the position he held at the time of his recent promotion.

Thomas L. Klingel, 42, who was recently promoted to chief engineer of the Soo Line at Minneapolis, Minn. (*RT&S*, Jan., p. 10), graduated from the University of Minnesota with a B. S. degree in civil engineering and entered railroad service with the Soo Line in June 1937. In September 1938 he became a research fellow at the Institute of Technology, University of Minnesota. He returned to the Soo Line in January 1940 and served as assistant engineer, division engineer and engineer maintenance of way. In August 1947 Mr. Klingel returned to the University of Minnesota as assistant professor of civil engineering later becoming associate professor of civil engineering. He reentered the service of the Soo Line in September 1951 as principal assistant engineer and later was promoted to assistant chief engineer maintenance of way.

Robert F. Lawson, 39, who was recently named assistant district engineer on the New York Central at Cleveland, Ohio (*RT&S*, Dec., p. 12), graduated from Ohio State University, and joined the NYC as an assistant engineer at Springfield, Ohio, in December 1940. He subsequently served in that capacity at Mattoon, Ill., and at Indianapolis, Ind., and in January 1946 was named assistant B&B supervisor at Galion, Ohio. In September 1947 he was promoted to office engineer, maintenance of way, at Springfield and, in July 1952, was named assistant division engineer at that location. In April 1955 he was promoted to division engineer at Mattoon, and in January 1956 was transferred in that capacity to Chicago. At the time of

Quick starts down to 65° BELOW ZERO for Diesel and gasoline engines



SPRAY STARTING FLUID, with the propellant used in the pressurized can, insures quick starts for Diesel and gasoline engines in temperatures as low as 65° F. below zero and withstands 180° F. heat. This combustible propellant was developed after two years of research.

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1931 **27 CONSECUTIVE YEARS** 1958 MODERN BALLAST CONDITIONING



BEFORE "R. B. C. C." Service



AFTER "R. B. C. C." Service

"R. B. C. C." ballast cleaning service has earned its outstanding performance record from 27 years of successful operation. Our 3 and 5 unit trains are entirely self contained on our own standard railroad equipment—No railroad cars are used or tied up.

"R.B.C.C." 5 unit equipment does a thorough ballast conditioning job, cleaning two center ditches or two shoulders or one of each at one trip.

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"R.B.C.C." ballast cleaning or excavating service, complete with our own personnel and equipment, is handled on contract basis.



RAND TOWER
MINNEAPOLIS, MINN.



METROPOLITAN BANK BLDG.
WASHINGTON, D. C.



Biographical briefs (cont'd)

his recent promotion Mr. Lawson was serving as district methods engineer, maintenance of way, Southern district.

Robley H. Morrison, 46, who was recently appointed to chief engineer of the Lake Superior & Ishpeming at Marquette, Mich. (*RT&S*, Jan., p. 10), graduated from the University of Maine. He began railroading in 1940 as superintendent bridges and buildings with the Bangor & Aroostook. He served in that capacity until 1945 when he was promoted to principal assistant engineer. In 1952 he was appointed assistant chief engineer, and in

1953 was named chief engineer—the position he held until his recent appointment with the Lake Superior & Ishpeming.

Association News

American Wood-Preservers' Association

The fifty-fourth annual meeting of the association will be held at the Hotel Stat-

ler, Los Angeles, April 14-16. This will be the first convention to be held in California since 1921 when the association's annual meeting was held at San Francisco. Members and guests are urged to arrive on April 13 so they will be able to attend the president's reception to be held that evening.

National Railway Appliances Association

The annual meeting will be held at 3 pm on March 11 in the ballroom of the Coliseum. This room is on the second floor at the south end of the building. Principal items of business will include the election of officers and voting on proposed changes in the by-laws and constitution.

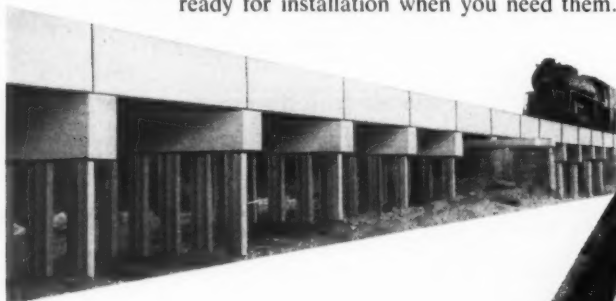
Northwest Maintenance of Way Club

"Ten Years of Railroad Radio" will be the subject to be discussed at the March meeting of the club which will be held on the 27th. The speaker will be A. H. Fox, engineer of communications of the Great Northern. The meeting will take place, as usual, at the Midway Civic Club, 1931 University avenue, St. Paul. Dinner starts at 6:30 pm.

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PILING and BRIDGE SLABS

Time is money. Save it by using precast piling and bridge slabs made by American-Marietta—ready for installation when you need them.



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Economy, safety and appearance are three good reasons for specifying A-M open or closed face Cribbing. Also it can be relocated easily.



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Supply Trade News

ALLIS-CHALMERS—**W. J. Klein**, a vice president, is now director of sales promotion, Tractor group. He was director of sales, Tractor group. Mr. Klein will now direct the advertising, sales promotion and marketing activities for the products of the Farm Equipment, Construction Machinery, and Engine-Material Handling Divisions. **R. L. Smith** has been named manager of advertising for the three divisions in the Tractor Group.

AMERICAN CREOSOTING CORPORATION—This company, a wholly owned subsidiary of **Union Bag-Camp Paper Corporation**, has announced the appointment of **Dwight A. Fawcett** as assistant to the vice-president, with offices at Chicago. Mr. Fawcett recently retired as resident vice-president of the New York Central at Chicago. In his new position he will act as sales consultant on railroad accounts in the Chicago, Cleveland and St. Louis areas.

ARMCO DRAINAGE—**Robert H. Akers**, Cincinnati district manager for **Armco Drainage & Metal Products, Inc.**, has been appointed railroad sales manager for the central division, with headquarters in Cleveland. **J. S. Loeffler**, has been promoted to manager of drainage and allied product sales for the northwestern division, at Minneapolis. **Wendell W. Andres** has been named railroad sales engineer for that area.

(Continued on page 109)

Here's your ticket to the
NORDBERG
"March of Progress"
 at the Chicago Coliseum
 March 10th through 13th

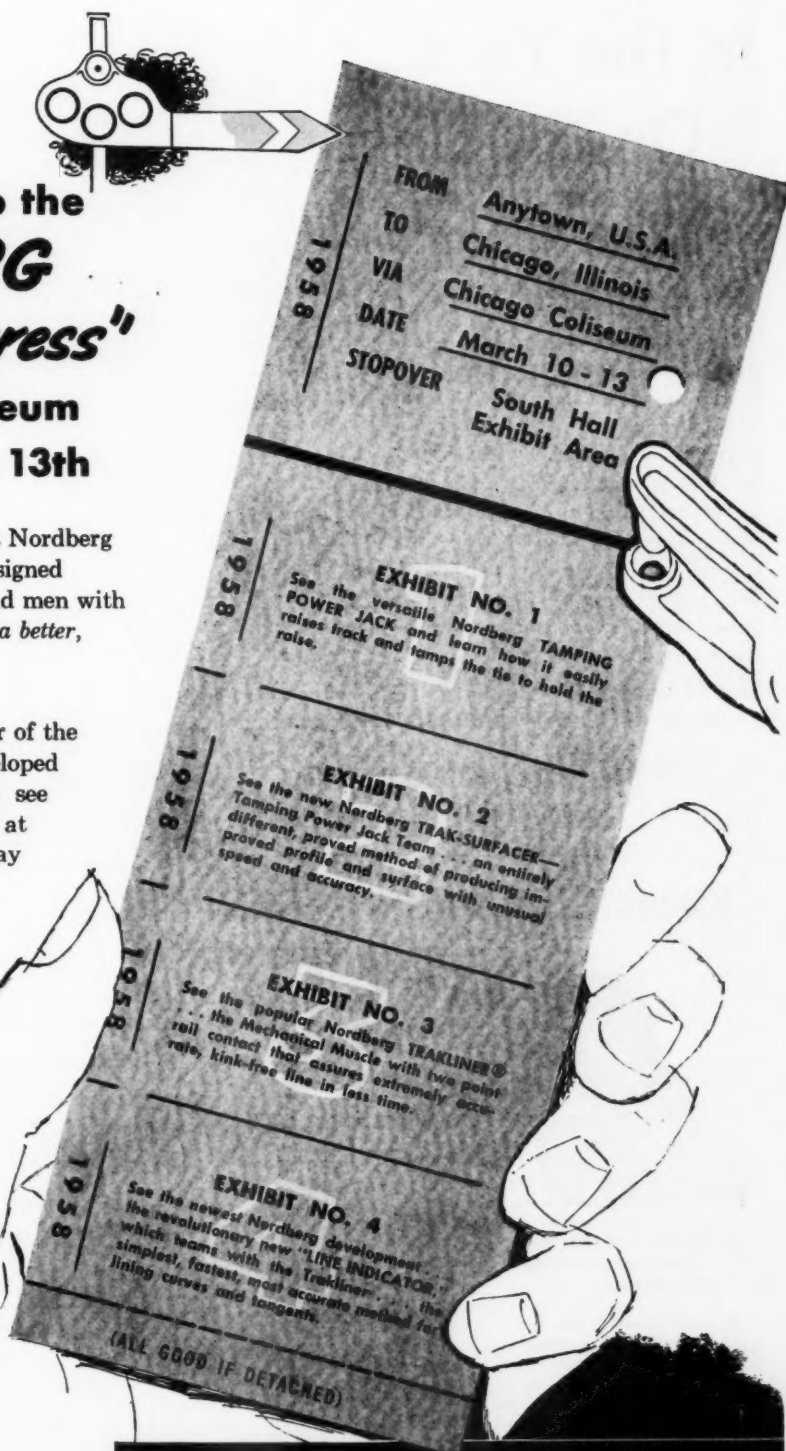
Here is your chance to see the latest Nordberg Maintenance of Way Equipment designed and built in cooperation with railroad men with one basic purpose in mind . . . *to do a better, faster maintenance job at the lowest possible cost.*

While this "ticket" highlights four of the newest Nordberg Machines, all developed in recent months, you will also see many more "Mechanical Muscles"® at the better than ever Nordberg display in the South Hall of the Coliseum. *Don't miss it!*

**Nordberg Mfg. Co.,
 Milwaukee 1, Wisconsin**

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R258



NORDBERG
Mechanical Muscles®



*Serving the Nation's Railroads
 for over 25 years.*

In The Yard... OR On The Line **BURRO**

WORK POWER PAYS!

When a BURRO goes to work — in the yard or on the line — it delivers fast, low cost performance. Equipped with bucket, magnet, hook, tongs or dragline bucket, a BURRO is ready and able to do the hundreds of odd jobs railroad work calls for. Fast travel speeds (up to 22 mph.) and heavy draw bar pull enable the BURRO to move itself and a work train or cars to the job in a hurry. Once on the job, a BURRO wastes no time getting the work done. BURRO's work power pays dividends every day it operates.

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Keep Cool, mister! with **ARCTIC BOY** portable water coolers



- Rugged Construction ... good everywhere men work!
- Galvanized inset, hot dipped *after* forming for flaw-free finish!
- Large top opening, easy to ice, fill and clean.
- Send for complete information and booklet "Care and Use of Your Cooler." Write Dept. C-72.



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For the Smoothest
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Railroad Tracks ...



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IMPROVED

"Guardmaster" FLANGEWAY CROSSING GUARD

Smooth Durable Crossings—Low installation
and Maintenance Cost.

Write today for Brochure.

TRACKWORK of ALL KINDS

Rails of all sizes, Splice Bars, Bolts, Spikes, Tie
Plates, Frog and Switch Materials, Tools, etc.
Railroad Track Material inquiries invited.

KASLE STEEL CORP.

P.O. Box 536

Detroit 32, Michigan

Tiffany - 6-4200

Supply trade news (cont'd)

(Continued from page 106)



Roger B. Coleman
Chipman



Robert H. Bennewitz
Linde

CHIPMAN CHEMICAL COMPANY—Roger B. Coleman, district manager of this company's Railroad Division, with headquarters at Chicago, has been promoted to general manager of the Railroad Division with the same headquarters. **Charles S. Langdon**, sales manager of the Railroad Division, has been assigned a position with a new company being formed by Chipman in another field. Mr. Langdon will remain at Bound Brook, N. J.

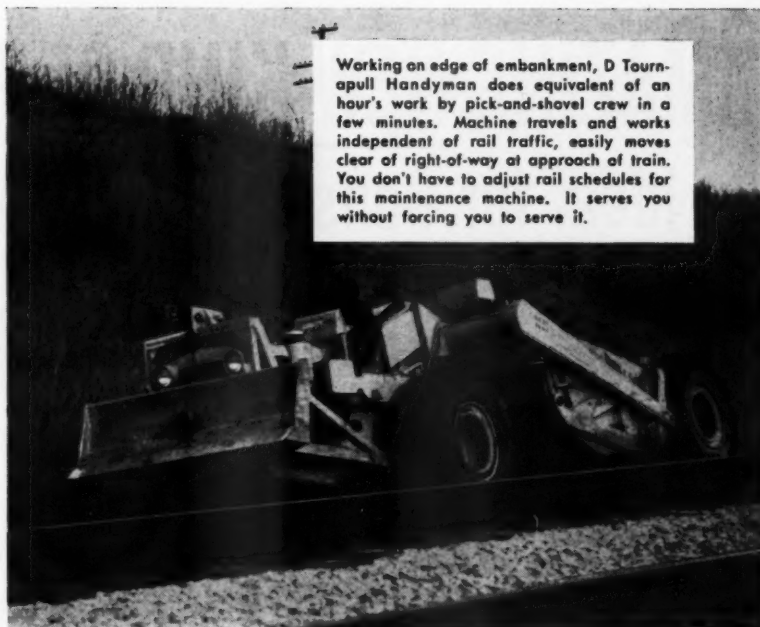
GEIGY AGRICULTURAL CHEMICALS—This company, a division of Geigy Chemical Corporation, has appointed **Leo Miles** industrial sales specialist for Simazin 50W herbicide for weed control. He was formerly a field representative for U. S. Borax & Chemical Corporation.

INTERNATIONAL RAILROADS' WEIGHING CORP.—This company has announced the transfer of its executive offices from Indianapolis to Chicago, where they will be located in the Field Building, 135 S. La-Salle St. All officers, executives and departments except the engineering, production and research departments will be located in the new offices. The latter departments will remain headquartered in the Hammond yard of the Monon where the company's system for weighing coupled freight cars is being tested under service conditions.

KAISER ALUMINUM—G. J. Weihofen has been appointed head of the railroad department of Kaiser Aluminum & Chemical Sales, Inc. He succeeds A. J. Ringholm, who has been named assistant product manager, extrusions.

LINDE COMPANY—Robert H. Bennewitz has been named assistant manager of the railroad department of this company, which is a division of Union Carbide Corporation. Mr. Bennewitz joined the Linde Company as a development engineer in 1941 following his graduation from the University of Wisconsin. After serving in various positions, he was appointed southwestern region manager of engineering service in 1955, the position he was holding at the time of his recent promotion.

METAL & THERMIT CORPORATION—This company has sold its Thermit welding business to the **Reade Manufacturing Company**. In announcing its retirement from the welding field, Metal & Thermit said the company's growth plans call for concentration of activities and expansion in



Working on edge of embankment, D Tournapull Handyman does equivalent of an hour's work by pick-and-shovel crew in a few minutes. Machine travels and works independent of rail traffic, easily moves clear of right-of-way at approach of train. You don't have to adjust rail schedules for this maintenance machine. It serves you without forcing you to serve it.

Save time and expense on right-of-way maintenance

handle scattered clean-up with 1-man D 'Pull*

NOW much of the load-haul-and-spread operations on your right-of-way maintenance can be a one-man, one-machine operation—with the LeTournneau-Westinghouse D Tournapull® Handyman. This self-propelled, rubber-tired scraper isn't tied to rails. 138 hp, 9-yd "D" can be push-loaded, or will self-load up to about 75% of capacity. It travels shortest route to work—via right-of-way, highway, or cross-country—at speeds to 29.5 mph.

Once the 'Pull operator has his orders, he's on his own—doesn't have to wait around for a crew, work train, or dispatcher orders. Nor does he have to wait for main line clearance. He goes directly to his work, at roading speeds to 29.5 mph... gets into action as soon as he arrives!

Tires float over obstacles

Low-pressure tires of D 'Pull provide a smooth-rolling surface for travel. Yet, tire lugs bite in deep when pulling power is needed. These 5'-high, 1½'-wide pneumatics flex over rails, ties, and other obstacles with a cushioning action... roll across tracks or over switches without causing or taking damage.

For close work in confined quarters—a common situation on right-of-way embankments—"D" has high maneuverability. This L-W Handyman turns 180° in 24'8"... eases through narrow 8' cuts... travels via highway in all 48 states without permit. Electric controls are quick and positive.

Interchange hauled work units

A dozer blade is available for the D 'Pull. The hauled scraper can also be interchanged with a Rear-Dump body behind the same prime-mover, for hauling shovel-loaded material. Or with a lift-and-carry crane, with an arch suitable for hauling rails, poles—equipped with 61,500-lb-pull electric winch. Also available are interchangeable flatbed and side-dump haulers.

Compare with present methods

Get all the facts on the versatile, mobile 138 hp D Tournapull now. Compare its work and travel performance... its manpower requirements... with whatever combination of men and machinery you may be using at present. Write for complete specifications on the versatile "D".

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Where quality is a habit



AMAZING NEW KIND OF POWER SAW...

Ideal for Construction...Maintenance!

Guarded reciprocating blade — 166 power-strokes a second!



Less than 25 lbs. complete, ready to operate.

WRIGHT REBEL

GASOLINE POWERED

NO WHIPPIN' KICKIN' CHAIN! Only the blade moves

\$189⁵⁰

includes 20" blade
F.O.B. Sheboygan, Wis.
Price applies in U.S. only

FREE DEMONSTRATION Attach this ad to your letterhead and send to Thomas Industries.



WRIGHT CYCLONE

COMPRESSED-AIR POWERED

Connect to any 60 cu. ft. compressed air supply... does all types of cutting jobs... even under water! A safety "must" in mines! No fumes, no spark hazard! Only 14½ lbs. total weight.

\$295⁰⁰

includes 21" blade
F.O.B. Sheboygan, Wis.
Price applies in U.S. only

World's Safest Power Saw!

Totally *different* operating principle—reciprocating blade, NO CHAIN. Even with inexperienced help, either Wright saw is SAFE—in *any* position, and even when footing is insecure. Cuts sheathing, piling, concrete forms, ties. Does precision mill-edge cutting, clears land. Ideal for bridge work and wrecking.

WRIGHT AIR LINE OILER

Trouble-free lubrication for Wright Air Saw or other pneumatic tools. Meters oil into air supply. Light weight: 1¾ lbs. Capacity: ½ pt. Non-clogging, works in any position. Only

\$19⁹⁵



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THOMAS INDUSTRIES INC.
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Executive Offices: 410 S. Third St., Louisville 2, Ky.

DOES MORE JOBS—CUTS COSTS 6 WAYS

The Wright REBEL does anything a hand saw, buck saw or chain saw will do—and saves you money, time, effort, parts and supplies. Safe even in inexperienced hands.

- 1 Only 7 major moving parts—far fewer repairs and replacements.
- 2 Minimum maintenance—fewer adjustments, less attention, less time lost while in use.
- 3 You can change the blade in 1 minute.
- 4 Sharpen blade in 5 minutes, without special tools, right on the job.
- 5 New blade less than ½ cost of chain.
- 6 Blade needs NO LUBRICATION.

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- ☐ Send me FREE facts on Wright Rebel (gasoline powered)
☐ Send FREE folders on Wright Cyclone (pneumatic) and oiler

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Company (if any) _____

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Supply trade news (cont'd)

the production and marketing of chemicals, metals and arc-welding electrodes and equipment.

MORRISON RAILWAY SUPPLY CORPORATION—Kenneth E. Kemplin has been named eastern representative of the Morrison Metalweld Process, a division of Morrison Railway Supply Corporation. He will contact and service railroads, industrial plants and contractors in the Mid-Atlantic area, with headquarters at Wyomissing, Pa.

PULLMAN-STANDARD CAR MANUFACTURING CO.—This company has received a contract for fabrication of the world's first all-welded aluminum girder type highway bridge. The bridge, scheduled for completion next summer, will be a four-span, continuous aluminum girder structure with a composite reinforced concrete deck. It will be 222 ft long, 36 ft wide, with a 30-ft roadway, and will be supported by concrete piers. Construction of the bridge, which will carry traffic across a four-lane interstate express highway near Des Moines, Iowa, is a project being jointly sponsored by the Iowa State Highway Commission and three major producers of aluminum—Aluminum Company of America, Kaiser Aluminum & Chemical Corporation and Reynolds Metals Company.

SIMMONS-BOARDMAN PUBLISHING CORP.—Ralph M. Schmidt, associate editor of *Railway Track & Structures* and *Railway Age*, has been appointed editor of *Railway Purchases & Stores*, which was recently purchased by Simmons-Boardman. Mr. Schmidt, 29, attended Cornell College, Mt. Vernon, Iowa, and Purdue University. During the summers of 1948 and 1949 and from June 1950 to January 1952 he worked as a draftsman in the office of the chief engineer of the Illinois Central. He then left the Illinois Central to become associate editor of the two Simmons-Boardman publications, with headquarters at Chicago.

Obituary

Henry Davis, assistant to the vice-president in charge of sales, Eastern division, and manager of the market research department of the Eastern division of the Colorado Fuel and Iron Corporation, died on February 1, at the age of 47.

George W. Hoover, representative in New York for various railway supply companies, died suddenly at his home on January 31.

Clyde P. Ross, 76, president of Ross & White Company, died February 3 in Evanston Hospital, Evanston, Ill.

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Allis-Chalmers Mfg. Company, Buda Division 38	Kasle Steel Corporation 108	Rail Joint Company 28	
American Brake Shoe Company, Railroad Products Division 6, 7	Kershaw Manufacturing Co., Inc. Inside Front Cover, 16, 17	Rails Company, The Back Cover	
American Chemical Paint Co. 100	Koehring Division of Koehring Co. ... 97	Railway Ballast Conditioning Corporation 105	
American Hoist & Derrick Co. 79	Kohler Company 69	Railway Maintenance Corporation 36, 37	
American-Marietta Co. 106	Koppers Company, Inc., Tar Products Division 27	Railway Track-work Company 22	
Armco Drainage & Metal Products, Inc. 87	LeTourneau-Westinghouse Company 109, 111	Reade Manufacturing Company, Incorporated 34	
Athey Products Corporation 83	Lewis Bolt & Nut Company 69	Schild-Bantam Company 90	
Austin-Western Works, Construction Equipment Division, Baldwin-Lima-Hamilton Corporation 67	Maintenance Equipment Company Inside Back Cover	Schluter Manufacturing Co. 108	
Bernuth, Lembcke Company, Inc. 102	Mannix International Inc 32	Speno, Frank, Railroad Ballast Cleaning Co., Inc. 24	
Bethlehem Steel Company 3	Matisa Equipment Corp. 12	Spray Products Corporation 104	
Bird & Son, Inc. 31	McKiernan-Terry Corporation 96	Suburban Propane Gas Corporation .. 98	
Bogle Company, R. H. 20	Mid-West Forging & Manufacturing Company 63	Templeton, Kenly & Company 86	
Brice-Hayes Company 86	Motorola Communications & Electronics, Inc. 85	Thomas Industries, Inc., Wright Power Saw Div. 110	
Caterpillar Tractor Co. 4	National Cylinder Gas Co. 103	True Temper Corp. 75	
Chipman Chemical Co. 65, 81	National Lock Washer Company 101	Union Switch & Signal, Division of Westinghouse Air Brake Company 91	
Colorado Fuel & Iron Corp. 57-60	Nolan Company 94	Unit Rail Anchor, Division of Hubbard Specialty Products, Inc. ... 35	
Continental Motors Corporation 77	Nordberg Manufacturing Company 107	United States Borax & Chemical Corporation, Pacific Coast Borax Company Division 11	
Cullen-Friedstedt Company 108	Northwestern Motor Company 84	United States Envelope Co. 21	
Dow Chemical Company 72, 73	Onan & Sons, Inc., D. W. 104	Vacuum Can Company 94	
Fabreeka Products Company, Inc. ... 18	Orton Crane & Shovel Co. 23	Waukesha Motor Company 66	
Fairmont Railway Motors, Inc. 14, 15	Osmose Wood Preserving Company .. 30	Western Railroad Supply Company .. 69	
Foster Company, L. B. 104	P. & M. Company Front Cover	Wisconsin Motor Corporation 86	
Geigy Agricultural Chemicals Co. ... 89	Pettibone Mulliken Corp. 61	Woolery Machine Company 26	
General Chemical Division, Allied Chemical & Dye Corp. 25	Plasser Railway Machinery Company 99	Wright Power Saw, Division of Thomas Industries, Inc. 110	
Goodyear Tire & Rubber Co. 29	Pullman-Standard Car Manufacturing Company 8, 9		
Huber-Warco Company 93, 95	Q & C Company, The 94		
Jackson Vibrators, Incorporated .. 70, 92			

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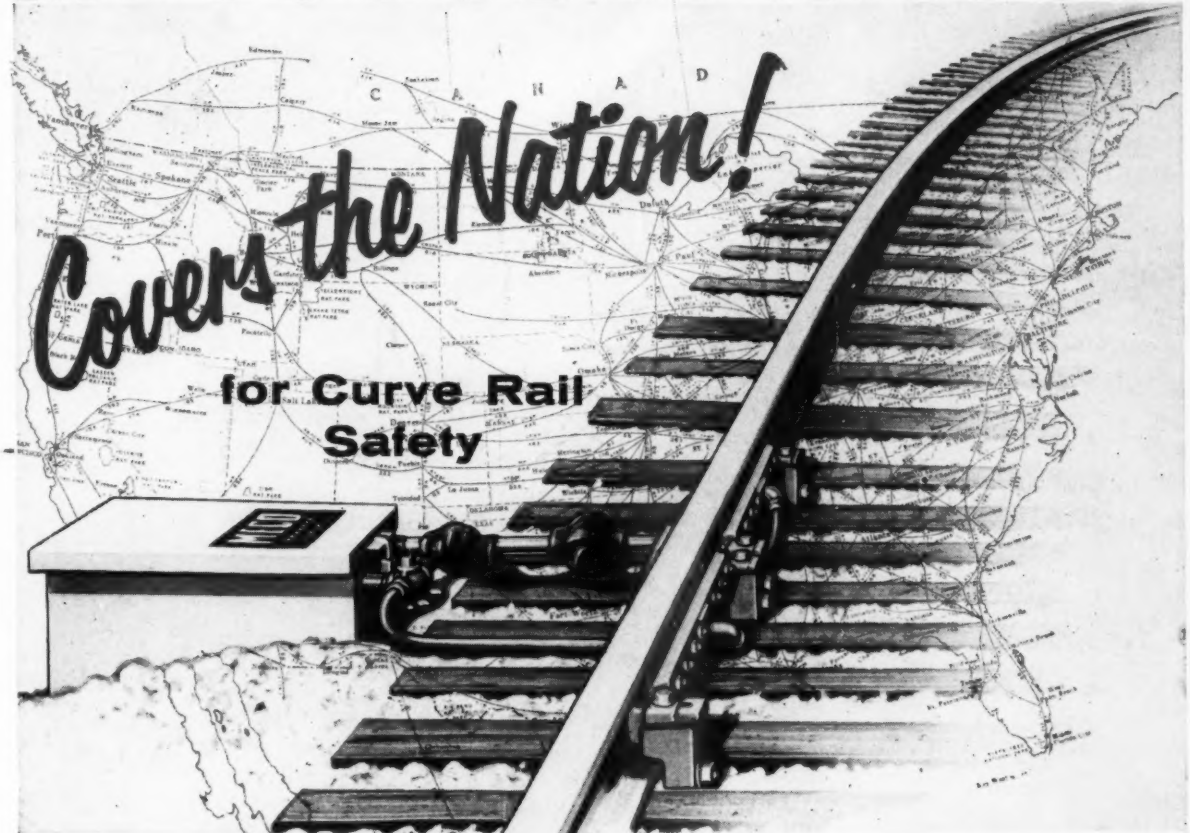
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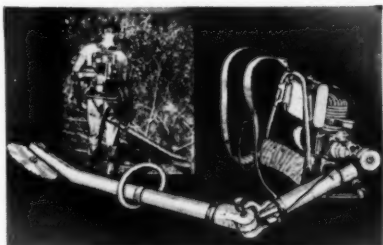
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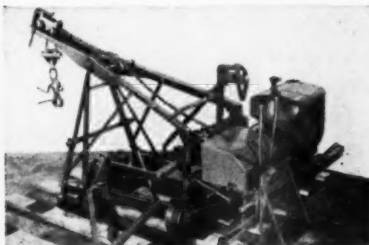
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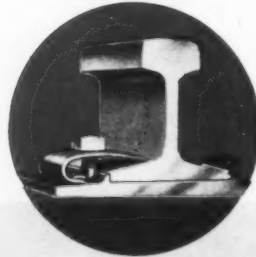


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